

MECHANICAL HANDLING

INCORPORATING 'MATERIALS HANDLING'

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The Right Hon. Reginald Maudling, P.C., M.P., President of the Board of Trade who, on Tuesday, May 3rd, will open the Seventh Mechanical Handling Exhibition, organized by this journal, at Earls Court, London, S.W. The Exhibition runs from Tuesday, May 3rd, to Friday, May 13th, Sunday excepted, and is open daily from 10 a.m. to 6 p.m.

The official opening by Mr. Maudling on Tuesday, May 3rd, will take place at noon.

THE EXHIBITION YOU MUST NOT MISS

THE Seventh Mechanical Handling Exhibition (organized by this journal) is an event of the first importance to all concerned with production, warehousing, transportation, and in fact to all concerned in one way or the other in commerce.

The subject of the Exhibition—a preview of which is given elsewhere in this issue—is one that affects all trades and industries. In fact it affects almost every walk of life. Since the first occasion in 1948, the Mechanical Handling Exhibition has been held biennially in London: production executives, managers and industrialists in every sphere of industry have come to rely on this event to keep them in touch with the latest equipment for cutting costs and increasing production. This year the Exhibition (Tuesday 3rd to Friday 13th May, Sunday excepted) will feature the largest display of mechanical handling equipment the world has ever seen.

It is realized to-day that national prosperity depends to a very large extent on our export markets. But competition from overseas is increasing. Therefore the price, finish, delivery and, in some cases, the quantity of the goods which can be produced, are all factors which affect our success in meeting foreign competition. In all these matters, materials handling has a vital role.

A visit to Earls Court during the run of the Exhibition is a good place to begin putting your workshop or factory in order. Here will be found specialists in all aspects of materials handling who will gladly give you the benefit of their experience.

Comparing the various types of equipment that are available is a profitable and interesting way of spending your time. Since the last Mechanical Handling Exhibition in 1958 many new items of equipment have been produced and many new firms have appeared. Equipment, some in the prototype stage, will be ready for display and demonstration at this year's Exhibition. Whether you need a small truck, a hand-operated hoist or a complete conveyor installation, at the Mechanical Handling Exhibition in May you will be able to see the products of the best mechanical handling engineers in the world.

JUNE

The above report number of the 1960 Mechanical Handling Exhibition will *NOT* be in stand-by-stand order.

It will be reported under equipment, i.e. conveyors, cranes, excavators, loading and unloading equipment, fork trucks, etc.

Pour les lecteurs de l'étranger
Für unsere ausländischen Leser
Para los lectores de ultramar

SUMMARY OF CONTENTS

For readers overseas

SOMMAIRE EN FRANÇAIS

Le Salon de la Manutention Mécanique (organisé par le journal *Mechanical Handling*) se tiendra du mardi 3 mai au vendredi 13 mai (à l'exclusion du dimanche). Ouvert tous les jours de 10h 00 à 18h 00. Earls Court, Londres, S.W.

Le Salon de la Manutention Mécanique, qui a lieu à Londres tous les deux ans, est à présent devenu une manifestation de la plus haute importance, non seulement pour la vie industrielle de la Grande-Bretagne, mais aussi pour l'industrie dans le monde entier.

Le premier Salon de la Manutention Mécanique, tenu en 1948, est aujourd'hui reconnu comme ayant marqué un tournant décisif dans l'industrie. En effet, il mit en pleine lumière toute l'importance de la question de la manutention des matériaux et l'emploi du matériel de manutention mécanique, montrant clairement comment on pouvait adapter les méthodes du temps de guerre et l'utilisation du matériel de manutention mécanique dans la période de guerre aux besoins de l'industrie en temps de paix.

Le journal *Mechanical Handling* existait déjà depuis de longues années avant le premier Salon de la Manutention Mécanique, mais cette Exposition de 1948 constituait l'endroit où celui qui s'intéressait à la question pouvait enfin voir devant ses yeux l'équipement de manutention mécanique, le voir à l'oeuvre et, souvent même, en discuter avec son créateur. A ce premier Salon, un Congrès eut lieu, avec une série d'exposés sur divers aspects de la manutention des matériaux. C'était la première fois en Angleterre, dans le Commonwealth anglais et en Europe que l'on présentait un exposé sur la question de la manutention des matériaux. Ainsi, ce Salon de 1948 lançait cette question d'intérêt capital, sans lequel l'industrie ne pourrait survivre. De grands progrès ont été accomplis en matière de dessin

technique et de perfectionnement, ainsi que dans l'utilisation du matériel de manutention mécanique, même depuis le Salon de 1958, sans compter celui de 1948.

Occupant une surface de plus de 50.000 mètres carrés dans ce hall immense, le prochain Salon de la Manutention Mécanique s'annonce comme le plus vaste et le plus varié que l'on ait jamais vu. A mesure que les travaux d'installation de cette grande exposition industrielle progressaient, un grand nombre de noms nouveaux venaient allonger la liste des exposants, dénotant un développement continu dans toutes les branches de l'industrie de la manutention mécanique depuis la dernière exposition. Les demandes de renseignements émanant de visiteurs éventuels de toutes les parties du monde indiquent que des acheteurs de plus de quatre-vingt pays se proposent de parcourir le Salon pendant les dix jours qu'il durera.

Dans ce numéro spécial préalable de *Mechanical Handling*, les lecteurs trouveront tous renseignements concernant cette Exposition, comme ci-après:—

Exposants: noms et adresses catalogués par ordre alphabétique Page 248
Services et aspects spéciaux du Salon Page 260

Numéros des Stands, indiqués sur les plans de l'Exposition avec numéros renvoyant au nom de l'exposant Page 256
Revue préalable de l'article exposé, précisions sur chaque exposant dans l'ordre A à Z, pour s'y référer rapidement Page 262

Outre les informations sur toute l'Exposition, ce numéro contient les articles suivants:—

Matériel Anglais de Manutention Mécanique à l'Etranger Page 318
Chariots transporteurs à fourche de conception révisée Page 321

Par le Rédacteur Technique
La présentation de la gamme Série 5 de ce chariot de construction anglaise bien connu apporte une construction par blocs très poussée et un style nouveau.

Manutention du tabac en feuille Page 330
Par un collaborateur particulier
C'est la description des méthodes em-

ployées dans les sept entrepôts en douane dans le port de Manchester.

Manutention dans la production de la Bénédictine Page 333

Par A. E. C. Evans

Cet article indique le haut degré de mécanisation qui s'associe à présent à la production de cet article bien connu et présente les méthodes de manutention appliquées.

Résumés et références Page 346
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INHALTSÜBERSICHT AUF DEUTSCH

Fördermittel-Ausstellung (von dieser Zeitschrift veranstaltet) Dienstag d. 3. Mai bis Freitag d. 13. Mai (Sonntags geschlossen). Täglich von 10.00 bis 18.00 Uhr geöffnet. Earls Court, London, S.W.

Die alle zwei Jahre in London veranstaltete Fördermittel-Ausstellung ist zu einem Ereignis grösster Bedeutung geworden, und zwar nicht nur für die britische Industrie, sondern für die Industrie der ganzen Welt.

Die erste Fördermittel-Ausstellung im Jahre 1948 wird heute als ein massgeblicher Wendepunkt auf dem Gebiet der Förder-technik angesehen. Durch sie wurde die Bedeutung des Materialflusses und die Anwendung mechanischer Hilfsmittel ins Rampenlicht gebracht, und sie zeigte, auf welche Weise im Kriege angewandte Methoden und Rüstzeuge den Friedens-mässigen Erfordernissen der Industrie angepasst werden konnten.

Die Zeitschrift *Mechanical Handling* kann auf eine lange über den Zeitpunkt der ersten Fördermittelausstellung hinausgehende Geschichte zurückblicken, aber die Ausstellung 1948 bot Interessenten

erstmalig die Gelegenheit, mechanische Fördermittel und Hebezeuge wirklich in Betrieb zu sehen und in vielen Fällen auch mit dem Konstrukteur Rücksprache nehmen zu können. Gleichlaufend mit dieser ersten Ausstellung wurde eine Tagung abgehalten, auf der eine Reihe von Vorträgen über die verschiedenen Gesichtspunkte der Fördertechnik gehalten wurden, und es handelte sich hierbei um das allererste Mal, dass im Britischen Commonwealth oder Europa jemals ein Referat über fördertechnische Fragen vorgelegt wurde. Auf diese Weise erweiterte die Ausstellung 1948 ein weltweites Interesse an diesem wichtigen Gebiet, ohne welches die Industrie heute nicht mehr lebensfähig wäre. Riesenfortschritte in Konstruktion, Entwicklung und Anwendung mechanischer Rüstzeuge sind sogar seit der Ausstellung 1958 zu verzeichnen, woraus man sich ein Bild machen kann, was seit 1948 geleistet worden ist.

Mit einer Bodenfläche von etwa 50.000 qm in dieser Reishalle verspricht die nächste Fördermittelausstellung die grösste und vielseitigste Veranstaltung ihrer Art zu werden, die jemals abgehalten worden ist. Im Zuge der Zusammenstellung dieser grossartigen Industriedarbietung sind immer wieder neue Namen auf dem Ausstellerverzeichnis aufgetaucht, welche die stetige Ausdehnung aller Zweige der Fördertechnik seit der letzten Ausstellung erkennen lassen. Anfragen von Interessenten aus aller Welt lassen darauf schliessen, dass Käufer aus über 80 Ländern die Ausstellung während ihrer 10-tägigen Dauer besuchen werden.

Diese Sonder-Vorschauausgabe von *Mechanical Handling* enthält ausführliche Ausstellungsinformationen über:

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Ausstellungsdienste und Sondereinrichtungen Seite 260

Standnummern, aus dem Ausstellungsplan ersichtlich und mit Bezugsnummern auf die Namen der Aussteller Seite 256

Vorschau über das Ausstellungsgut, zum leichteren Auffinden nach Namen der Aussteller von A bis Z geordnet Seite 262

Ausser den die Ausstellung betreffenden Informationen enthält die Ausgabe noch folgende Artikel:—

Britische Förderanlagen Und Hebezeuge im Ausland Seite 318

Neukonstruierte 'Conveyancer'-Gabelstapler Seite 321

Von unserem technischen Redakteur
Die Baureihe 5 dieses bekannten britischen Gabelstaplers zeichnet sich durch weitgehende Baukastenkonstruktion und neue Formgebung aus.

Verladen und Fördern von Blatttabak Seite 330

Von einem Sonderberichterstatte
Eine Beschreibung der in sieben Zollverschleissbehältern im Hafen von Manchester zur Anwendung kommenden Methoden.

Materialfluss in der Erzeugung von Benedictine Seite 333

Von A. E. C. Evans

Dieser Artikel lässt das Mass der Mechanisierung erkennen, die bei der Produktion dieses bekannten Erzeugnisses heute zur Anwendung kommt, und befasst sich mit den verschiedenen Materialflussmethoden der Fabrik.

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SUMARIO EN ESPAÑOL

Exposición del Manipuleo Mecánico (organizada por esta Revista). Martes 3 de Mayo a Viernes 13 de Mayo (exclusive el domingo). Abierto cada día de las 10 a las 18 horas. Earls Court, Londres, S.W.5.

La Exposición del Manipuleo Mecánico, que se celebra en Londres cada dos años, se ha convertido ya en un acontecimiento de la mayor importancia, no solamente para la vida industrial de la Gran Bretaña, sino también para la industria en todo el mundo.

La primera Exposición del Manipuleo Mecánico, que tuvo lugar en 1948, se reconoce ahora que constituyó un gran momento decisivo para la industria. Puso en el 'primer plano' la importancia de la cuestión del movimiento de materiales y del uso de equipos de manipulación mecánica, demostrando que los métodos del tiempo de guerra y el uso de los equipos de manipuleo mecánico que se difundió durante la guerra podían adaptarse a las necesidades de la industria en tiempo de paz.

La Revista *Mechanical Handling* ya existía desde muchos años antes de la primera Exposición del Manipuleo Mecánico, pero la Exposición de 1948 era el lugar en que las personas interesadas podían ver y observar los equipos de manipulación mecánica, verlos funcionar, pudiendo en muchos casos hablar con el propio proyectista. En aquella primera Exposición se celebró una Convención, en la que fueron presentados una serie de estudios sobre diversos aspectos de la manipulación de materiales. Era la primera vez, no solamente en la Gran Bretaña sino también en la Comunidad Británica de Naciones y en Europa, que se presentaba una comunicación técnica sobre el tema del movimiento de materiales. De este modo la Exposición de 1948 inició el interés vital en esta importante esfera, sin la que la industria no podría sobrevivir. Y en el diseño, perfeccionamiento y uso de los equipos

de manipulación mecánica se han realizado enormes adelantos, no sólo desde la Exposición de 1948, sino incluso desde la de 1958.

Extendiéndose sobre una superficie de más de 50.000 metros cuadrados en esta gran Sala, la próxima Exposición del Manipuleo Mecánico promete ser la mayor y la más diversificada que jamás se haya celebrado. Mientras iba progresando la preparación de esta gran exposición industrial, fueron apareciendo muchos nombres nuevos en la lista de los expositores, reflejando el crecimiento constante en todas las ramas de la industria de la manipulación mecánica desde la última Exposición. Las consultas de los posibles visitantes de todas partes del mundo revelan que habrá compradores de más de 80 países que recorrerán la Exposición durante los 10 días en que estará abierta.

En este número especial de *Mechanical Handling*, que presenta a la Exposición, se hallará información completa sobre la misma como sigue:—

Expositores, sus nombres y direcciones en orden alfabético Pág. 248

Servicios de la Exposición y detalles especiales Pág. 260

Números de los puestos, indicados en los planos de la Exposición con números de referencia a los nombres de los expositores Pág. 256

Presentación de los productos expuestos, descripción de cada uno de los expositores, de A a Z para facilidad de consulta Pág. 262

Además de la información relativa a la Exposición, se publican los siguientes artículos:—

Equipos británicos de manipulación mecánica en ultramar Pág. 318

Las carretillas de Conveyancer Fork Trucks reprojectadas Pág. 321

Por el Redactor en Jefe Técnico

La introducción del surtido de la Serie 5 de esta conocidísima marca británica de carretillas se basa en gran parte en la construcción por unidades y en un nuevo estilo.

Manipulación de tabaco en hojas por un colaborador especial Pág. 330

Descripción de los métodos empleados en los siete almacenes de aduanas del puerto de Manchester.

La manipulación en la producción de benedictino Pág. 333

Por A. E. C. Evans

Este artículo revela el alto grado de mecanización que entra ahora en la producción de este conocido licor, e indica los métodos de manipulación empleados.

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NAMES AND ADDRESSES OF EXHIBITORS

AT THE MECHANICAL HANDLING EXHIBITION

Earls Court, London, May 3rd-13th, 1960

Open daily, except Sunday, from 10 a.m. to 6 p.m.

Note.—Stands with numbers prefixed by one letter, e.g. H11, are on the ground floor. Where the number is prefixed by two letters, e.g. GG18, the stand will be found on the first floor.

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAN. NO.
A			
Abisch Conveyor & Furnace Co., Ltd., 194-196 Finchley Road, London, N.W.3	Swiss Cottage 3353-4-5	Abconvey, Haver	K2
Access Equipment, Ltd., Maylands Avenue, Hemel Hempstead, Herts	Boxmoor 5781	Accesequip, Hemelhempstead	B5
Accles & Pollock, Ltd., Oldbury, Birmingham	Broadwell 1500	Accles, Oldbury, Telex	HH5
Acrow (Engineers), Ltd., South Wharf, Paddington, London, W.2	Ambassador 3456	Acrowlit, Padd., London	L3 & KK
Adrema, Ltd., 2-10 Telford Way, London, W.3	Shepherds Bush 2091	Adremalt, Wesphone, London	DD6
Allam, E. P., & Co., Ltd., 132-135 Sloane Street, Westminster, S.W.1	Sloane 9976	Epaltical	N2
Allspeeds, Ltd., Oakenshaw Works, Clayton-le-Moors, Accrington, Lancs	Accrington 5441	Variator, Accrington	LL1
Anderston Clyde Engineers, Ltd., Irk Vale Works, Haigh Lane, Chadderton, Lancs	Oldham Main 7871-2	Colossus, Oldham	B2
Angel Truck Co., Ltd., The, 242-244 Billet Road, Walthamstow, London, E.17	Larkwood 5566	Angeltruc, London, E.17	E2
Antifyre, Ltd., Shaftesbury Road Works, Acton, W.3	Acorn 1166-7	Selantifyr, Wesphone	NN1b
Associated Electrical Industries, Ltd., Rugby, Warwickshire	Rugby 2121	Assoelect, Rugby, Telex	GG13 & GG14
Associations Group Stand:			
Aerial Ropeways Association	Abbey 4961	Crusades, Sowest, London	} Central Aisle, Ground Floor
Association of Crane Makers	Holborn 2662	—	
Association of Lifting Tackle Makers	Birmingham Midland 5021	—	
British Industrial Truck Association	Abbey 7226	Crusades, Sowest, London	
Mechanical Handling Engineers' Association	Abbey 4961	Crusades, Sowest, London	
Autoset (Production), Ltd., Stour Street, Birmingham 18	Edgbaston 1143-4	Edgbaston 1143	CC9
B			
B.T.R. Industries, Ltd., Herga House, Vincent Square, S.W.1	Victoria 3848	Britgoods, Telex, London	GG10
Babcock & Wilcox, Ltd., Babcock House, 209 Euston Road, N.W.1	Euston 4321	Babcock, London, Telex	J7 & W, Brompton Forecourt No. 1
Bagshawe & Co., Ltd., Dunstable Works, Dunstable, Beds	Dunstable 300-1-2	Bagshawe, Dunstable	F8
Baldwin Industrial Controls, Dartford, Kent	Dartford 26411	Baldwin, Dartford	HH33
Barron, W. S., & Son, Ltd., Bristol Road, Gloucester	Gloucester 21055-6-7	Barron, Gloucester	H11
Barrow, Hepburn & Gale, Ltd., Church Road, Mitcham, Surrey	Mitcham 5121	Belting, Mitcham	GG3
Becker Equipment & Lifts, Ltd., Twin-Lift Works, Alperton, Wembley, Middx	Wembley 4454	—	D8
Bennis Combustion, Ltd., Little Hulton, Walkden, Manchester	Walkden 3213	Bennis, Phone, Little Hulton	M3
Boydell, E., & Co., Ltd., Elsinore Road, Old Trafford, Manchester 16	Trafford Park 1641	Muirhil, Manchester 16	F6
Bray Construction Equipment, Ltd., Faggs Road, Feltham, Middx	Feltham 3471-4	Braydozer, Feltham	E11
British Electrical Repairs, Ltd., Empire House, 10 Charlotte Street, Manchester 1	Manchester Central 1378	Manchester Central 1378	HH11
British Ermeto Corporation, Ltd., Beacon Works, Hargrave Road, Maidenhead	Maidenhead 5100-9	Grambon, Maidenhead	LL11
British Hoist & Crane Co., Ltd., Compton (Newbury), Berks	Compton 234	Brithoist, Compton, Newbury	N6
British Metal Crates, Ltd., Coronation Street, Stockport	Stockport 3786	Metalkrate, Stockport	L2
British MonoRail, Ltd., Wakefield Road, Brighouse, Yorks	Brighouse 2244	Monorail, Brighouse	D4

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
British Nylon Spinners, Ltd., 68 Knightsbridge, S.W.1	Kensington 6333	Nylon, London, Telex	CC4 & CC5
British Ropeways Engineering Co., Ltd., Plantation House, Mincing Lane, E.C.3	Mincing Lane 7901	Boxhauling, Fen, London	G2
British Wedge Wire Co., Ltd., The, Elmswood, Bounds Green Road, New Southgate, N.11	Bowes Park 8442	Modmec, N.11	A1
Brockhouse Engineering, Ltd., Victoria Works, Hill Top, West Bromwich	Wednesbury 0243	Brockhouse, West Bromwich	GG18
Brookhirst Igranite, Ltd., Igranite Works, Bedford	Bedford 66261	—	GG9
Brown, David, Industries, Ltd., Park Works, Huddersfield	Huddersfield 3500	Gearing, Huddersfield	H4
Brush Electrical Engineering Co., Ltd., Falcon Works, Loughborough, Leics (Battery Electric Vehicle Dept.)	Loughborough 3131	Brush, Loughborough, Telex	C3
Burnand, W. E., & Son, Ltd., Duo Works, 66-106 Shoreham Street, Sheffield 1	Sheffield 24148	W. E. Burnand & Son, Ltd., Sheffield	GG5
Butter Bros. & Co., Ltd., 'The Crane Works', Long Lane, Hillingdon, Middx	Uxbridge 2288	Buta Cranes	J8A

C

C.A.V., Ltd., Warple Way, Acton, London, W.3	Shepherds Bush 3111	Vanteria, Telex, London	NM7
C.P.C. (Southampton), Ltd., Tanners Street, Tanners Hill, Southampton	Southampton 76305-6-7-8	Ceepeecee, Southampton	E9
Callow, F. E. (Engineers), Ltd., Birchill Road, Kirkby Industrial Estate, nr. Liverpool	Simonswood 2461-2-3	Fecallow, Liverpool	CC6
Cargon Transport (Great Britain), Ltd., Bordesley Works, Birmingham 12	Birmingham Victoria 2371	Cargonco	W. Brompton Forecourt No. 7
Carter Gears, Ltd., Thornbury, Bradford	Bradford 64378	Became, Bfd., Telex	NN6
Cary, William E., Ltd., Red Bank, Manchester 4	Deansgate 7881	Cary, Bank, Manchester	FF13
Caterpillar Tractor Co., Ltd., P.O. Box No. 162, Glasgow	Uddingston 2921	—	FI4 & G14
Charrold, Ltd., Tower House, 40 Trinity Square, London, E.C.3	Royal 9111	—	GG1
Chase, P. C. & C. K., Ltd., Portsmouth Road, Cobham, Surrey	Cobham 35	—	M1
Chloride Batteries, Ltd., Exide Works, Clifton Junction, Swinton, Manchester	Swinton 2011	Chlorexide, Manchester	GG7
Cohen, George, Sons & Co., Ltd., Wood Lane, London, W.12	Shepherds Bush 2070	Omniplant, Telex, London	H9, L5, W. Brompton Forecourt No. 4
Collis, J., & Sons, Ltd., Regent Square, Gray's Inn Road, W.C.1	Terminus 6141-2	Imbercio, Kingcross, London	J6
Compressed Rubber Products, Ltd., Bell Works, Harefield, Middx	Harefield 2123-5	Harebell, Harefield, Middx	JJ4
Conveyancer Fork Trucks, Ltd., Liverpool Road, Warrington, Lancs	Warrington 35241	Hydraulics, Warrington	J13, HH34, W. Brompton Forecourt No. 2
Conveyors (Readybuilt), Ltd., Cainscross Works, Stroud, Glos	Stroud 1604	Redler Stroud & Arr Bee Stroud	F7
Corbett, R. H., & Co., Ltd., Frindsbury Works, Rochester, Kent	Stroud 78421	Woodfield, Telex, Rochester	K9
Cordey Thomson, 64 Glenhurst Avenue, Bexley, Kent	Crayford 23100	—	DD9
Cort, Robert, & Son, Ltd., Reading Bridge Iron Works, Reading	Reading 55056	Corts, Reading	E13
Coventry Climax Engines, Ltd., Widdrington Road, Coventry	Coventry 21424	Climax, Coventry	F11
Crofts (Engineers), Ltd., Thornbury, Bradford 3, Yorks	Bradford 65251	Crofters, Bradford, Telex	HH12
Crone & Taylor (Engineering), Ltd., Sutton Oak, St. Helens, Lancs	St. Helens 3283-4-5	Crontaylor, St. Helens	D5
Cutler Conveyor Co., Low Town, Oldbury, nr. Birmingham	Broadwell 2192	—	EE2

D

D.P. Battery Co., Ltd., Bakewell, Derbyshire	Bakewell 581-5	Battery, Bakewell	EE7
Dallow Lambert Co., Ltd., Thurmaston, Leicester	Syston 3333	Dust, Leicester	JJ8
Dargue Brothers, Ltd., New Simplon Works, South Parade, Halifax	Halifax 3218-9	Simplon, Halifax	FF15
Denison, Saml., & Son, Ltd., Hunslet Foundry, Leeds 10	Leeds 75488	Weigh, Leeds 10	KK12
Dexion, Ltd., Maygrove Road, Kilburn, N.W.6	Maida Vale 6031	Dexion, Kilb., London	HH10

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Diac, Ltd., New Addington, Croydon, Surrey	Lodge Hill 3232	Kurtag, Croydon	H14
Dialled Despatches, Ltd., The Green, Gosport, Hampshire	Gosport 80221-5	Nicholsons, Gosport	G13
Didsbury Engineering Co., Ltd., Little Western Street, Rusholme, Manchester 14	Rusholme 1495-6-7	Minilift, Manchester 14	G1
Doity Cranes, Ltd., 24 Brazenrose Street, Manchester 2	Whitworth 3195	Doity, Manchester	E7b
Douglas Equipment, Ltd., Kingsditch Lane, Tewkesbury Road, Cheltenham	Cheltenham 56361	Douglas, Cheltenham	N4 & N5
Dowty Hydraulic Units, Ltd., Ashchurch, Tewkesbury, Glos	Tewkesbury 2271	Dowty, Ashchurch, Telex	GG12
Dowty Seals, Ltd., Ashchurch, Glos	Tewkesbury 2271	Dowty, Ashchurch, Telex	KK
Drag Scraper & Conveyor Co., Ltd., Regis House, King William Street, E.C.4	Mansion House 6125	Deessce, Cent, London	G2
Dunlop Rubber Co., Ltd., The, Belting Division, Speke, Liverpool 24	Hunts Cross 1850	Duncospeke	JJ5
E			
E.M.S. Electrical Products, Ltd., Common Lane, Kenilworth, Warwickshire	Kenilworth 658 & 892	—	MM4
Eccles (Birmingham), Ltd., Off Arrow Road, Redditch, Worcs	Redditch 3365-6-7	—	B4
Electro-Hydraulics, Ltd., Liverpool Road, Warrington, Lancs	Warrington 35241	Hydraulics, Warrington	HH25
Electromagnets, Ltd., Bond Street, Birmingham 19	Birmingham Central 5391-2-3	Boxmag, Birmingham	NN3
Electropower Gears, Ltd., Kingsbury Works, Kingsbury Road, N.W.9	Colindale 4621	Lektropowa, Hyde, London	HH32
English Electric Co., Ltd., The, Queen's House, Kingsway, W.C.2	Covent Garden 1234	Enelectico, Estrand, London	HH28
Epcos, Ltd., Star Works, Skinner Lane, Leeds 7	Leeds 27471	Epcos, Leeds	LL7
Ewart Chainbelt Co., Ltd., Colombo Street, Derby	Derby 45451	Chainbelt, Derby	B3
F			
F'Ag Bearing Co., Ltd., Macrome Road, Green Lane, Tetten Hall, Wolverhampton	Wolverhampton 52075	Kages, Telex, Auto 33-214	EE12
Felber, Gordon, & Co., Ltd., Spirella House, Oxford Circus, London, W.1	Regent 3605	Jorog, Phone, London	DD7
Felco Hoists, Ltd., 29 Cromwell Road, South Kensington, S.W.7	Kensington 7401	Felcohoist, Westphone, London	M2
Finspa Engineering Co., Ltd., Houghton Street, West Bromwich, Staffs	West Bromwich 2827	—	LL12
Fisher & Ludlow, Ltd., Material Handling Division, Bordesley Works, Birmingham 12	Birmingham Victoria 2371	Flowline, Birmingham	H8
Flexello Castors & Wheels, Ltd., Slough, Bucks	Slough 24121	Flexello, Slough	GG16
Floataire, Ltd., Joseph Street, Leicester	Leicester 23426-7	Floataire, Leicester	N3
Fluidrive Engineering Co., Ltd., Fluidrive Works, Isleworth, Middx	Isleworth 1121	Hydynamic, Isleworth	HH11
Ford Motor Co., Ltd., Dept. D.4, Tractor Division, Dagenham, Essex	Dominion 3000	Fordmotor, Dagenham, Telex	J9
Ford Motor Co., Ltd., Parts Division, Aveley Depot, South Ockendon, Romford, Essex	South Ockendon 3434	Fordparts, Romford, Telex	JJ10
Fourways (Engineers), Ltd., Hemnall Street, Epping, Essex	Epping 2251-2	Fel, Epping	G8
Fyson, C. J. R., & Son, Soham, Cambs	Soham 249	Fyson, Soham	M5
G			
Gandy, Ltd., Wheatland Works, Wheatland Lane, Wallasey	Wallasey 9574	Gandy, Birkenhead	EE8
Gardiner's Conveyors, Ltd., 16 Lafone Street, Bermondsey, S.E.1	Hop 3012-3-4	Carririte, Sedist, London	H15
Gascoigne, Geo. H., Ltd., Berkeley Avenue, Reading	Reading 54417	Kee Klamps, Reading	C2
Geest Industries, Ltd., White House Chambers, Spalding, Lincs	Spalding 2326	Geest, Telex, Spalding 3235	A3
Gimson & Co. (Leicester), Ltd., Vulcan Road, Leicester	Leicester 27272	Gimson, Leicester	C4
Glenaldie Engineering Co., Ltd., Great Haseley, Oxford	Great Milton 10	Glenaldie, Great Milton	NN2
Glover, J., & Sons, Ltd., Groton Road, Earlsfield, S.W.18	Vandyke 7755	Stormor, Westphone, London	EE1
Godfrey, Sir George, & Partners (Industrial), Ltd., Hampton Road West, Hanworth, Middx	Feltham 3291	Godfrepart, London	LL16
Goodyear Tyre & Rubber Co. (Gt. Britain), Ltd., The, Wolverhampton	Wolverhampton 22321	Gotyruco, Wolverhampton	GG8
G.P.O. London Telecommunications Region, Waterloo Bridge House, Waterloo Road, S.E.1	City 2000, Extn. 7074/7492	—	Adjoining Exhibition Lounge Area—1st Floor

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Grading Machinery, Ltd., 46 High Road, Wormley, Herts	Hoddesdon 2377 & 3468	—	EE4
Grafton Cranes, Ltd., Vulcan Works, Bedford	Bedford 2490	Grafton, Bedford	G13b
Guest, Keen & Nettlefolds (Midlands), Ltd., Box 24, Heath Street, Birmingham 18 (Screw Division)	Smethwick 1441	Nettlefolds, Birmingham	JJ9
Bolt and Nut Division, Atlas Works, Darlaston	James Bridge 3100	Cotterills, Darlaston	JJ9
H			
Hamworthy Engineering, Ltd., Poole, Dorset	Poole 2020	Hydraulics, Poole	GG4
Helicoid Flight Conveyors, Ltd., Deva Works, Saltney, Chester	Chester 23434-7	Rustproof, Chester	HH13
Highfield Gear and Engineering Co., Ltd., Karrier Works, Huddersfield	Huddersfield 4490-1-2	Higears, Huddersfield	DD11
Holland Cranes, 338 Grand Buildings, Trafalgar Square, London, W.C.2	Whitehall 4272	—	D2a
Holroyd, John, & Co., Ltd., Milnrow, nr. Rochdale, Lancs	Milnrow 55322	Holroyds, Milnrow, Telex	KK15
Hunter, G. (London), Ltd., 80 Fenchurch Street, London, E.C.3	Royal 5522	Hunter, Fen, London	J11
Hydraulics & Pneumatics, Ltd., Wulfruna Works, Villiers Street, Wolverhampton, Staffs	Wolverhampton 24456	Wulfruna, Wolverhampton	GG11a
I			
I.T.D., Ltd., Webb Lane, Hall Green, Birmingham 28	Springfield 2282	Elecomcar, Birmingham	J12
Industrial & Commercial Finance Corporation, Ltd., 7 Draper's Gardens, London, E.C.2.	National 8621	Incof, Stock, London	KK3
Industrial Machine & Equipment Co. (Brimpex), Ltd., Brimpex Works, Yorktown Industrial Estate, Camberley, Surrey	Camberley 2688	Brimpex, Camberley, Surrey	J3
Institute of Materials Handling, The, 32 Watling Street, London, E.C.4	City 7045	—	Warwick Road Entrance H13
International Combustion Products, Ltd., 19 Woburn Place, London, W.C.1	Terminus 2833	Lopulco, Westcent, London	H13
Ionic Plating Co., Ltd., Ionic Works, Grove Street, Birmingham 18	Smethwick 1876	Ionic, Birmingham	JJ9
Irwin, E. G., & Partners, Ltd., 2 Princes Row, Buckingham Palace Road, S.W.1	Tate Gallery 9393	Trigmetric, Sowest, London	CC2
J			
Jewbury's Mechanical Handling, Ltd., Chapel Street, Manchester 3	Deansgate 4411-2-3	Powerants, Manchester 3	N1
Johnson, C. H. (Machinery), Ltd., Adswood, Stockport, Cheshire	Stockport 2642-3	Machinery, Stockport	J4b
K			
Keelavite Hydraulics, Ltd., Allesley, Coventry	Meriden 441	Keelavite, Coventry	EE9
Kenyon, Wm., & Sons, Ltd., Chapel Fields Works, Dukinfield, Cheshire	Ashton-under-Lyne 1614	Kenyon, Dukinfield	NN5
Kimbell Machine Tools, Ltd., 4 South Lambeth Place, Vauxhall, S.W.8	Reliance 6711	Jonkimbell, London, Telex	JJ12
King, Geo. W., Ltd., Argyle Works, Stevenage, Herts	Stevenage 440	Konveyas, Stevenage, Telex 82151	F9
Krausskopf Verlag, Bahnhofstrasse 61, Wiesbaden, Germany	—	—	HH4
L			
Lampeter Timber & Trading Co., Ltd., Millfield Works, Lampeter, Cards	Lampeter 293-4	—	LL2
Lamson Engineering Co., Ltd., Hythe Road, London, N.W.10	Ladbroke 2424	Kelywil, Harles, London	F2
Lancers Machinery, Ltd., 41 Knightsbridge, S.W.1	Belgravia 6374	Sideloader, London	M4
Lang Pneumatic, Ltd., Owen Road, Wolverhampton, Staffs	Wolverhampton 25221	Pneulang, Wolverhampton, Telex 33193	HH24
Langley & Co., Ltd., 14-16 Magdalen Street, London Bridge, S.E.1	Hop 2217-8	—	E5
Lansing Bagnall, Ltd., Kingsclere Road, Basingstoke, Hants	Basingstoke 1010	Bagnallic, Basingstoke	F10 & A4
Lawton (Successors), Ltd., Sentinel Works, Doris Road, Bordesley Green, Birmingham 9	Birmingham Victoria 1902-3-4	Specialities, Birmingham	FF8
Laycock Engineering, Ltd., Industrial Division, Victoria Works, Millhouses, Sheffield 8	Sheffield 74411	Invention, Sheffield	KK13
Lee Cases, Ltd., Maypole House, Finsbury Square, E.C.2	Monarch 9488	Leepakstock, London	MM9

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Legg (Industries), Ltd., Williamson Street, Wolverhampton	Wolverhampton 24091-2	Legrec, Wolverhampton	DD8
Lenson Engineering Co., Church Road Extension, Thurmaston, Leicester	Syston 2749	—	E7a
Leverton of Leeds, Ltd. (see Fred Myers), Gelderd Road, Gildersome, Leeds	Morley 4221	—	J10
Light Alloy Construction, Ltd., Mowden Hall, Darlington, Co. Durham	Darlington 5226	Summit, Telex 58512	JJ3 & NN1
Lloyds Bank, Ltd., 71 Lombard Street, E.C.3	Mansion House 1500	Branchage, Stock, London	FF7
Locker Industries, Ltd., Church Street, Warrington, Lancs	Warrington 34111-6	Lockers, Warrington	L6, L7 & K7
Lodematic, Ltd., Clitheroe, Lancs	Clitheroe 209, 1080 & 51	Lodematic, Clitheroe	L2a
Lucas, Joseph (Hydraulic & Combustion Equipment), Ltd., The Radleys, Marston Green, Birmingham 33	Marston Green 2281	Luset, Birmingham	KK10
M			
M.G.K. Engineering Co., Ltd., Gazette Building, Corporation Street, Birmingham 4	Birmingham Central 2517	Katelbee, Birmingham	D6
Mann, Albert, Engineering Co., Ltd., Basildon Industrial Estate, Essex	Basildon 20421	Ameco, Basildon	D1
Mann (Handling), Ltd., Bathville Steel Works, Armadale, West Lothian	Armadale 402-3	Mann, Armadale, West Lothian	CC3
Manufacturers Equipment Co., Ltd., Sutton Road, Hull, Yorks	Hull 13996	Rapistan, Hull	K4
Marcar, Alexander, & Co., Ltd., 61 Pall Mall, London, S.W.1	Whitehall 8586	Marcasteel, Piccy, London, Telex GBLN 28128	FF2
Marshall, A. L. (Carlton), Ltd., Cemetery Road, Carlton, Nottingham	Nottingham 24-6231	Marshall, Phone, Nottm. 24-6231	J2
Martonair, Ltd., Parkshot, Richmond, Surrey	Richmond 2201	Martonair, Richmond, Surrey, Telex	EE6
Massey-Ferguson (Gt. Britain), Ltd., Fletchamstead, Highway, Coventry	Tile Hill 65211	Masferg, Coventry	E4
Matbro, Ltd., Matbro Works, Horley, Surrey	Horley 4441-5	Matbro, Horley	G4
Materials Handling Equipment (Gt. Britain), Ltd., Church House, Maidenhead, Berks	Maidenhead 5160	Matanec, Maidenhead, Berks	K8
Matling, Ltd., Park Lane, Fallings Park, Wolverhampton	Wolverhampton 31295	Matling, Wolverhampton	H1
Matterson, Ltd., P.O. Box 31, Shawclough, Rochdale, Lancs	Rochdale 49321	Matterson, Rochdale	L8
Maxam Power, Ltd., 44 Brook Street, W.1	Hyde Park 9444	Airdrill, London	DD3
MECHANICAL HANDLING, Dorset House, Stamford Street, London, S.E.1	Waterloo 3333	Mechand, Sedist, London	Centre Aisle Ground Floor G10
Mercury Truck & Tractor Co., Ltd., The Quay, Gloucester	Gloucester 24451-2	Mercury, Gloucester	G10
Merrick Scale Mfg. Co., Ltd., Albert Street, Bulwell, Nottingham	Nottingham 27-1458-9	Merricks, Nottingham	DD5
Metal Box Co., Ltd., The, 37 Baker Street, London, W.1	Hunter 5577	—	GG15
Metal Products (Arden), Ltd., 65-70 Great King Street, Birmingham	Northern 5195	—	LL9
Midland Bank, Ltd., Premises Dept., Poultry, E.C.2	Monarch 9911	Midland, Stock, London	HH26
Mining Engineering Co., Ltd., Meco Works, Bromyard Road, Worcester	Worcester 22291	Meco, Worcester	K3
Mitchell Engineering, Ltd., 1 Bedford Square, London, W.C.1	Museum 5511	Micontraco, Westcent	H3
Mono Pumps, Ltd., Mono House, 1 Sekforde Street, Clerkenwell Green, E.C.1	Clerkenwell 8911	Monopumps, Phone, London	JJ7
Montgomerie Reid Engineering Co., Ltd., Bramley, Nr. Basingstoke, Hants	Bramley Green 289	Emmar, Bramley, Hants.	D2b
Morris, Herbert, Ltd., P.O. Box 7, Loughborough, Leics	Loughborough 3123	Comorris, Loughborough	H12 & J14
Morse Chain Division & Hartcliffe Chains Division of Borg-Warner, Ltd., Jubilee Road, Letchworth, Herts	Letchworth 2170	Borgwarner, Letchworth	EE3
Moss Gear Co., Ltd., The, Crown Works, Tyburn, Birmingham 24	Erdington 1661-6	Mosgear, Birmingham	KK4
Mucon Engineering Co., Ltd., Stonefield Way, South Ruislip, Middx	Byron 7261-2-3	Mucon, Ruislip	LL5
Murphy Radio, Ltd., Electronics Division, Welwyn Garden City, Herts	Welwyn Garden 3434	Murphy, Welwyn Garden City, Telex	MM3
Myers, Fred., Ltd., 24 Burton Street, Berkeley Square, W.1	Hyde Park 6911	Myerstrac, London	J10 & H6
N			
Neal, R. H., & Co., Ltd., Plant House, Longfield Avenue, Ealing, W.5	Ealing 3171	Snoslaen, Ealux, London	H7

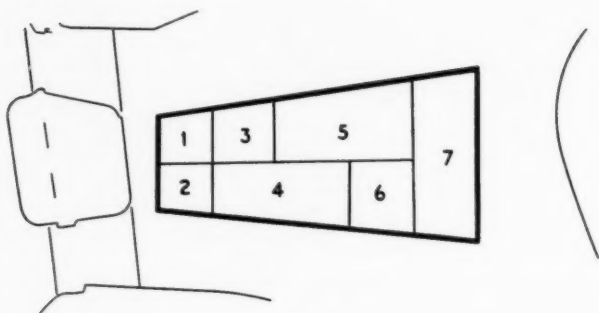
NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Neco Geared Motors, Ltd., 204 Queenstown Road, London, S.W.8	Macaulay 3211-4	Neconditi, Clapcom, London	HH8
Nife Batteries, Union Street, Redditch, Worcs	Redditch 157	Batteries, Redditch	KK18
Normand Electrical Co., Ltd., North Street, Clapham Common, S.W.4	Macaulay 3211-4	Neconditi, Clapcom, London	HH8
Northern Manufacturing Co., Ltd., Gainsborough, Lincs	Gainsborough 2231	Gears, Gainsborough	FF10
Numec Ltd., New Whittington, Chesterfield	Chesterfield 5707	Numec, Chesterfield	KK8
O			
Oddy Engineering, Ltd., Victoria Works, Millhouses, Sheffield 8	Sheffield 74411	Invention, Sheffield	KK13
Oldham & Son, Ltd., Denton, Manchester	Denton 2431	Oldhams, Denton, Manchester	KK14
Omik Ltd., 9 George Street, Baker Street, W.1	Welbeck 3313, 2678, 8981	Paliton, Wesdo, London	F12
Oppeman, S. E., Ltd., Boreham Wood, Herts	Elstree 2021	Gearcut, Borehamwood	GG11b
P			
Parsons, S., & Co., Ltd., Young Street, Bradford 8, Yorks	Bradford 45494	Parweigh, Bradford	LL6
Paterson Hughes Engineering Co., Ltd., Bedford House, Bedford Street, Strand, W.C.2	Temple Bar 7274-6	Zenithlo, Phone, London	J8
Penfold Fencing & Engineering, Ltd., Imperial Works, Balmoral Road, Watford, Herts	Watford 21241-3	Penfold, Watford	FF1
Perkins Engines, Ltd., Peterscourt, Peterborough, Northants	Peterborough 5341	Perkoil, Peterborough, Telex	GG17
Piper, F., & Sons, Ltd., 62-70 Elmington Road, Camberwell, S.E.5	Rodney 5288	—	DD12
Pitt, Charles (Barton Stacey), Ltd., Barton Stacey, Winchester, Hants	Sutton Scotney 251-2	Pitt, Barton, Stacey	E1
Plessey Co., Ltd., Kembrey Street, Swindon, Wilts	Swindon 6251	Plessey, Telex, Swindon	FF3
Pollard Bearing, Ltd., Ferrybridge, Knottingley, Yorks	Knottingley 2323	Balbearing, Ferrybridge	JJ6
Powell & Co., Burry Port, Carmar., South Wales	Burry Port 284-5	—	B7
Powell Duffryn Engineering Co., Ltd., Cambrian Works, Maundy, Cardiff	Cardiff 29611	Peedeng, Cardiff	J16
Power Jacks, Ltd., Valetta Road, London, W.3	Shepherds Bush 3443-6	Newsorber, Ealux, London	C5
Pressoturn, Ltd., Leamington Spa, Warwickshire	Leamington Spa 7056-7	Alucon, Leamington Spa	JJ11
Priestman Bros., Ltd., Hedon Road, Hull	Hull 75111	Priestman, Hull	G11
Promecon Manufacturing Co., Ltd., Thanet House, High Street, Brentford, Middx	Isleworth 6596-6601	—	CC8a
R			
Rack Engineering, Ltd., 408a Montrose Avenue, Trading Estate, Slough, Bucks	Slough 25108	Racks, Slough	A2
Ransomes and Rapier, Ltd., P.O. Box 1, Waterside Works, Ipswich	Ipswich 56383	Sluice, Ipswich Telex	G7
Rapid Magnetic, Ltd., Lombard Street, Birmingham 12	Birmingham Victoria 1137	Magnetism, Birmingham	DD2
Rawlplug Co., Ltd., The, Rawlplug House, Cromwell Road, South Kensington, S.W.7	Fremantle 8111	Rawlplug, London, S.W.7	FF14
Redler Conveyors, Ltd., Dudbridge Works, Stroud, Glos	Stroud 1604	Redler, Stroud	F7
Rendale Conveyors, Ltd., 5 Great Hampton Street, Birmingham 18	Birmingham Central 4225-6-7-8-9	Rendale, Birmingham	E6
Renold Chains, Ltd., Renold House, Wythenshawe, Manchester	Mercury 5221	Driving, Manchester	GG19
Revol, Ltd., Exchange Building, Quayside, Newcastle-on-Tyne 1	Newcastle 2-2480	Revolite	JJ2
Richards Structural Steel Co., Ltd., Phoenix Iron Works, Leicester	Leicester 61237	Richards, Leicester	CC1
Richardson Scale Co., Ltd., Albert Street, Bulwell, Nottingham	Nottingham 27-1441-3	Richscalco, Nottingham	B6
Riley (I.C.) Products, Ltd., 19 Woburn Place, London, W.C.1	Terminus 2833	Lopulco, Westcent, London	H13
Robello Engineering Co., Ltd., 43 Dover Street, London, W.1	Hyde Park 0659	—	FF4
Robinson, Thomas, & Son, Ltd., Railway Works, Rochdale, Lanes	Rochdale 47811	Robinson, Rochdale	KK7
Rolatruc, Ltd., 20 Old Compton Street, London, W.1	Regent 1509	Rolatruc, London	DD1
Ropeways, Ltd., 62 London Wall, London, E.C.2	National 0124-5	Ropeways, London	C6
Ross Engineers, Ltd., 11 Walpole Street, Surbiton, Surrey	Elmbridge 2345	Rospatent, Phone, London	LL15
Rowns (Conveyors), Ltd., Maiden Lane, York Way, Kings Cross, London, N.7	Gulliver 7721	Rowns, Cent, London	F5
Rubber By-Products (Warwickshire), Ltd., 86 Holloway Road, Birmingham 1	Birmingham Midland 3475-9	—	MM1

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Rubery, Owen & Co., Ltd., P.O. Box 10, Darlaston, Wednesbury, S. Staffs	James Bridge 3131	Ruberowen, Telex, Darlaston	J15
Russell Constructions, Ltd., Russell House, Adam Street, Adelphi, W.C.2	Temple Bar 0055	Russelcon, Rand, London	B1
S			
St. Claire Engineering Co., Ltd., Bridge Road, Lymington, Hants	Lymington 2156	—	D7A
Salisbury Precision Engineering, Ltd., Heston Airport, Hounslow, Middx	Hayes 3844	Hestairco, Hounslow	J5
Schrader's, A., Son, Division of Scovill Mfg. Co., 829 Tyburn Road, Erdington, Birmingham 24	Erdington 2267	Airvalve, Birmingham	LL3
Scientific Automation Co., Ltd., 5-7 New York Road, Leeds 2	Leeds 35401	Automation, Leeds	FF9
Scottish Mechanical Light Industries, Ltd., 42-44 Waggon Road, Ayr, Scotland	Ayr 64601	Scotmec, Ayr	DD10
Self-Changing Gears, Ltd., Lythalls Lane, Coventry	Coventry 89081	Self-Change, Coventry	DD4
Service Engineering Co. (Northampton), Ltd., Weedon Road, Industrial Estate, Northampton	Northampton 2631	Semac, Northampton	P1
Sharp Control Gear, Ltd., Lount Works, Ashby-de-la-Zouch	Ashby 422-3	Makitsharp, Ashby-de-la-Zouch	LL14
Shay, J.E., Ltd., Kingsclere Road, Basingstoke, Hants	Basingstoke 1100	—	A4
Sheepbridge Equipment, Ltd., Sheepbridge Works, Chesterfield, Derbys	Chesterfield 5471	Sheepbridge, Chesterfield	FF12
Shelvoke & Drewry, Ltd., Letchworth, Herts	Letchworth 234	Sheldry, Letchworth	G6
Silvertown Rubber Co., Ltd., Herga House, Vincent Square, S.W.1	Victoria 8323	Silvergray, Telex, London	MM6
Simon Handling Engineers, Ltd., Cheadle Heath, Stockport	Gatley 3621	S.H.E.L., Telex, Stockport	H5
Slingsby, H. C., Ltd., 89, 95-97 Kingsway, W.C.2	Holborn 2551	Truckman, Westcent, London	L1
Smith, R. (Horley), Ltd., 41 Balcombe Road, Horley, Surrey	Horley 3882	—	KK5
Smith, S., & Sons (England), Ltd., Cricklewood, London, N.W.2	Gladstone 3333	Speedofac, London, Telex	LL13
Smith, Thomas, & Sons (Rodley), Ltd., Crane & Excavator Works, Rodley, Leeds	Pudsey 2844	Smith, Rodley	H10
Spenborough Engineering Co., Ltd., Union Road, Heckmondwike, Yorks	Heckmondwike 924	Union, Heckmondwike	LL10
Spencer (Melksham), Ltd., Beanacre Road, Melksham, Wilts	Melksham 2251	Spencer, Melksham	F13 W. Brompton Forecourt No. 3
Stanhay (Ashford), Ltd., Elwick Works, Ashford, Kent	Ashford, Kent 1170	Stanhay, Ashford	E9
Steele, E. G., & Co., Ltd., 93 West George Street, Glasgow, C.2	Glasgow Central 0934-5	Mountings, Glasgow, C.2	JJ1
Steels Engineering Products, Ltd., Crown Works, Sunderland	Sunderland 56281	Steel, Sunderland	G9 W. Brompton Forecourt No. 5
Stein Atkinson Vickers Hydraulics, Ltd., 197 Knightsbridge, London, S.W.7	Knightsbridge 9641	Hydraulics, London, S.W.7	EE5
Stephens Belting Co., Ltd., Snow Hill, Birmingham 4	Birmingham Central 4841	Mirabelt, Birmingham 4	EE11
Stephens, E., & Son, Ltd., 58-66 Bath Street, London, E.C.1	Clerkenwell 1731	—	HH6
Stewart Gill & Co., Ltd., Wellcroft Road, Slough, Bucks	Slough 20874 & 21173	—	J4a
Stott, S. S., Ltd., Haslingden, Rossendale, Lancs	Rossendale 666	Elevator, Haslingden	KK10
Strachan & Henshaw, Ltd., Steelhoist Works, Victoria Road, St. Philips, Bristol 2	Bristol 78331	Stelhoist, Bristol	F3
Strappings, Ltd., Gordian House, Aintree Road, Perivale, Greenford, Middx	Alpertown 2333-7	Hiten, Greenford	MM8
Super Oil Seals & Gaskets, Ltd., Birmingham Factory Centre, Kings Norton, Birmingham 30	Kings Norton 2041	Oilseal, Birmingham	HH2
Superbuilt Products, Ltd., Bell Works, Harefield, Middx	Harefield 2123-5	Harebell, Harefield	JJ4
Sutcliffe, Richard, Ltd., Universal Works, Horbury, Wakefield, Yorks	Horbury 350	Sutcliffe, Horbury	G3
T			
T. & T. Works, Ltd., and Modern Plant Autoloaders, Billesdon, Leicester	Billesdon 261	Conveyor, Leicester	G15
Taylor, F., & Sons (Manchester), Ltd., 142 Bolton Road, Pendleton, Salford 6, Lancs	Pendleton 1341	Efftayson, Salford 6	K6

NAME AND ADDRESS	TELEPHONE NO.	TELEGRAPHIC ADDRESS	STAND NO.
Technivision, Ltd., Braywick House, Nr. Maidenhead, Berks	Maidenhead 5163	—	GG14b
Teleflex Products, Ltd., Basildon, Essex	Basildon 20581	Teleflex, Phone, Basildon	H2
Thames Packaging Equipment, Ltd., The, 28 City Road, London, E.C.1	Monarch 7387-8	Pakitup, Cent, London	DD14
Thomas, Bertram (Engrs.), Ltd., 23 Victoria Street, London, S.W.1	Abbey 2737	Dylectromo, London	D7b
Tilgate Sawmills, Ltd., Brighton Road, Crawley, Sussex	Crawley 25751	—	CC8b
Tirfor Ltd., 27 Broomgrove Road, Sheffield 10	Sheffield 64436	Machinery, Sheffield 10	BB1
Tower Cranes, Ltd., 39 Victoria Street, London, S.W.1	Abbey 6806	Towcranes, Sowest, London	W. Brompton Forecourt No. 6
Tube Rights, Ltd., Kirkby Industrial Estate, Liverpool	Simonswood 2882	—	E10
Tuglin Ltd., Scotts Green, Dudley, Worcs	Dudley 54311	Trucks, Dudley	E12
Tunn Cranes, Ltd., Abbey House, 2 Victoria Street, London, S.W.1	Abbey 6866	Tunn Crane, London	C1
Turner Bros. Asbestos Co., Ltd., Rochdale, Lancs	Rochdale 4221	Turners, Rochdale, Telex 63-174	GG6
U			
United Dominions Trust Commercial, Ltd., The, United Dominions House, Eastcheap, E.C.3	Mincing Lane 3020	Banquithus, Telex, London	GG2
Universal Conveyor Co., Ltd., Barkby Road, Leicester	Leicester 67822	—	F1
V			
V.M.E. Conveyor & Furnace Co., Ltd., 1026-28 Harrow Road, London, N.W.10	Ladbroke 0259	—	F4
Vac-U-Lift (Great Britain), Ltd., 34 West George Street, Glasgow, C.2	Douglas 2144	Vaculift, Glasgow	P2
Varatio-Strateline Gears, Ltd., 277-279 Aberdeen Avenue, Trading Estate, Slough	Slough 20271-2	Varatio, Slough	FF5
W			
Ward, Thos. W., Ltd., Albion Works, Sheffield	Sheffield 26311	Forward, Sheffield	D3
Weatherill, F. E., Ltd., Tewin Road, Welwyn Garden City, Herts	Welwyn Garden 4221	Weatherhyd, Welwyn Garden City	E8
Webb Conveyors & Automation, Ltd., Airport Works, Rochester, Kent	Chatham 44400	Jerweb, Chatham	KK6
Wessex Industries (Poole), Ltd., Dolphin Works, West Street, Poole	Poole 2000	Industries, Poole	K5
West Dock Timber Co., Ltd., Manchester Street, Hull, E. Yorks	Hull 37738	Woodcraft, Hull	MM2
Westinghouse Brake & Signal Co., Ltd., 82 York Way, Kings Cross, N.1	Terminus 6432	Westinghouse, London, Telex	CC7
Weston Works (Birmingham), Ltd., Weston Lane, Greet, Birmingham 11	Acocks Green 3936	Sunsabod, Birmingham 11	EE10
West's Group of Industries, Norton Street, Miles Platting, Manchester 10	Collyhurst 2961	Stoker, Manchester 10	KK1
Westwood, Dawes & Co., Ltd., Bowling Green Road, Stourbridge, Worcs	Stourbridge 4741-4	Westwood, Dawes, Stourbridge	FF6
Wharton Engineers (Elstree), Ltd., Watford Road, Elstree	Elstree 2205	Experimental, Elstree	HH14
Wheway Watson & McLean Ltd., Green Lane, Walsall, Staffs	Walsall 3171	Wheway, Walsall	FF11
White Child & Beney, Ltd., Shepley Works, Audenshaw, Nr. Manchester	Denton 4248	Slivcans, Manchester	KK17
Willmot Trucks, Ltd., Scotts Green, Dudley, Worcs	Dudley 54311	Trucks, Dudley	E12
Winget, Ltd., Rochester, Kent	Strood 7276	Wingetism, Rochester	K1
Wingrove & Rogers, Ltd., Acornfield Road, Kirkby, Industrial Estate, Nr. Liverpool	Simonswood 2631	Components, Liverpool 13	L4
Wiseman, Alfred, & Co., Ltd., Glover Street, Birmingham 9	Birmingham Victoria 2216-9	Verus, Phone, Birmingham	KK11
Witlor, Ltd., 107-109 Lancaster Street, Birmingham 4	Aston Cross 2865	Witlor, Birmingham	P3
Wood, Hugh, & Co., Ltd., Royal London House, Finsbury Square, E.C.2	Monarch 3273	Huwood, Stock, London	G5
Y			
Yale & Towne Manufacturing Co., Materials Handling Division, Wednesfield, Wolverhampton, Staffs	Willenhall 941	Yaletowne, Wolverhampton	G12
Youngman, W. C., Ltd., Manor Royal, Crawley, Sussex	Crawley 1234	Youngman, Crawley	E3
Z			
Zinc Alloy Rust Proofing Co., Ltd., Shakespeare Street, Wolverhampton	Wolverhampton 27531	Zincproof, Wolverhampton	NN1



PLANS OF EXHIBITION



WEST BROMPTON FORECOURT

- 1 Babcock & Wilcox, Ltd.
- 2 Conveyancer Fork Trucks, Ltd.
- 3 Spencer (Melksham), Ltd.
- 3A Fred Myers, Ltd.; Leverton & Co., Ltd.
- 4 George Cohen, Sons & Co., Ltd.
- 5 Steels Engineering Products, Ltd.
- 6 Tower Cranes, Ltd.
- 7 Cargon Transport (Great Britain), Ltd.

GROUND FLOOR

- A1 The British Wedge Wire Co., Ltd.
- A2 Rack Engineering, Ltd.
- A3 Geest Industries, Ltd.
- A4 J. E. Shay, Ltd.
- B1 Russell Constructions, Ltd.
- B2 Anderston Clyde Engineers, Ltd.
- B3 Ewart Chainbelt Co., Ltd.
- B4 Eccles (Birmingham), Ltd.
- B5 Access Equipment, Ltd.
- B6 Richardson Scale Co., Ltd.
- B7 Powell & Co.
- C1 Tunny Cranes, Ltd.
- C2 Geo. H. Gascoigne Co., Ltd.
- C3 Brush Electrical Engineering Co., Ltd.
- C4 Gimson & Co. (Leicester), Ltd.
- C5 Power Jacks, Ltd.
- C6 Ropeways, Ltd.
- D1 Albert Mann Engineering Co., Ltd.
- D2A Holland Cranes
- D2B Montgomerie Reid Engineering Co., Ltd.
- D3 Thos. W. Ward, Ltd.
- D4 British MonoRail, Ltd.
- D5 Crone & Taylor (Engineering), Ltd.
- D6 M.G.K. Engineering Co., Ltd.
- D7A St. Clare Engineering, Ltd.
- D7B Bertram Thomas (Engineers), Ltd.
- D8 Becker Equipment & Lifts, Ltd.
- E1 Charles Pitt (Barton Stacey), Ltd.
- E2 The Angel Truck Co., Ltd.
- E3 W. C. Youngman, Ltd.
- E4 Massey-Ferguson (United Kingdom), Ltd.

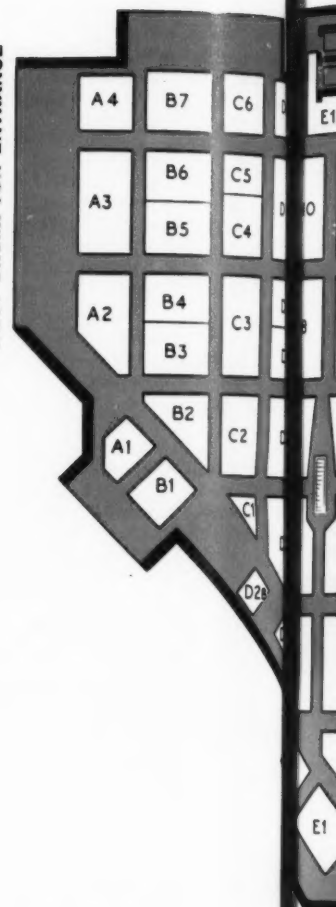
- E5 W. Langley & Co., Ltd.
- E6 Rendale Conveyors, Ltd.
- E7A Lenson Engineering Co.
- E7B Doity Cranes, Ltd.
- E8 F. E. Weatherill, Ltd.
- E9 C.P.C. (Southampton), Ltd.
- E10 Stanhay (Ashford), Ltd.
- E11 Tubewrights, Ltd.
- E11 Bray Construction Equipment, Ltd.
- E12 Willmot Trucks, Ltd.
- E12 Tuglift, Ltd.
- E13 Robert Cort & Son, Ltd.

- F1 Universal Conveyor Co., Ltd.
- F2 Lamson Engineering Co., Ltd.
- F3 Strachan & Henshaw, Ltd.
- F4 V.M.E. Conveyor & Furnace Co., Ltd.
- F5 Rownsons (Conveyors), Ltd.
- F6 E. Boydell & Co., Ltd.
- F7 Redler Conveyors, Ltd.
- F8 Bagshawe & Co., Ltd.
- F9 Geo. W. King, Ltd.
- F10 Lansing Bagnall, Ltd.
- F11 Coventry Climax Engines, Ltd.
- F12 Omic, Ltd.
- F13 Spencer (Melksham), Ltd.
- F14 Caterpillar Tractor Co., Ltd.

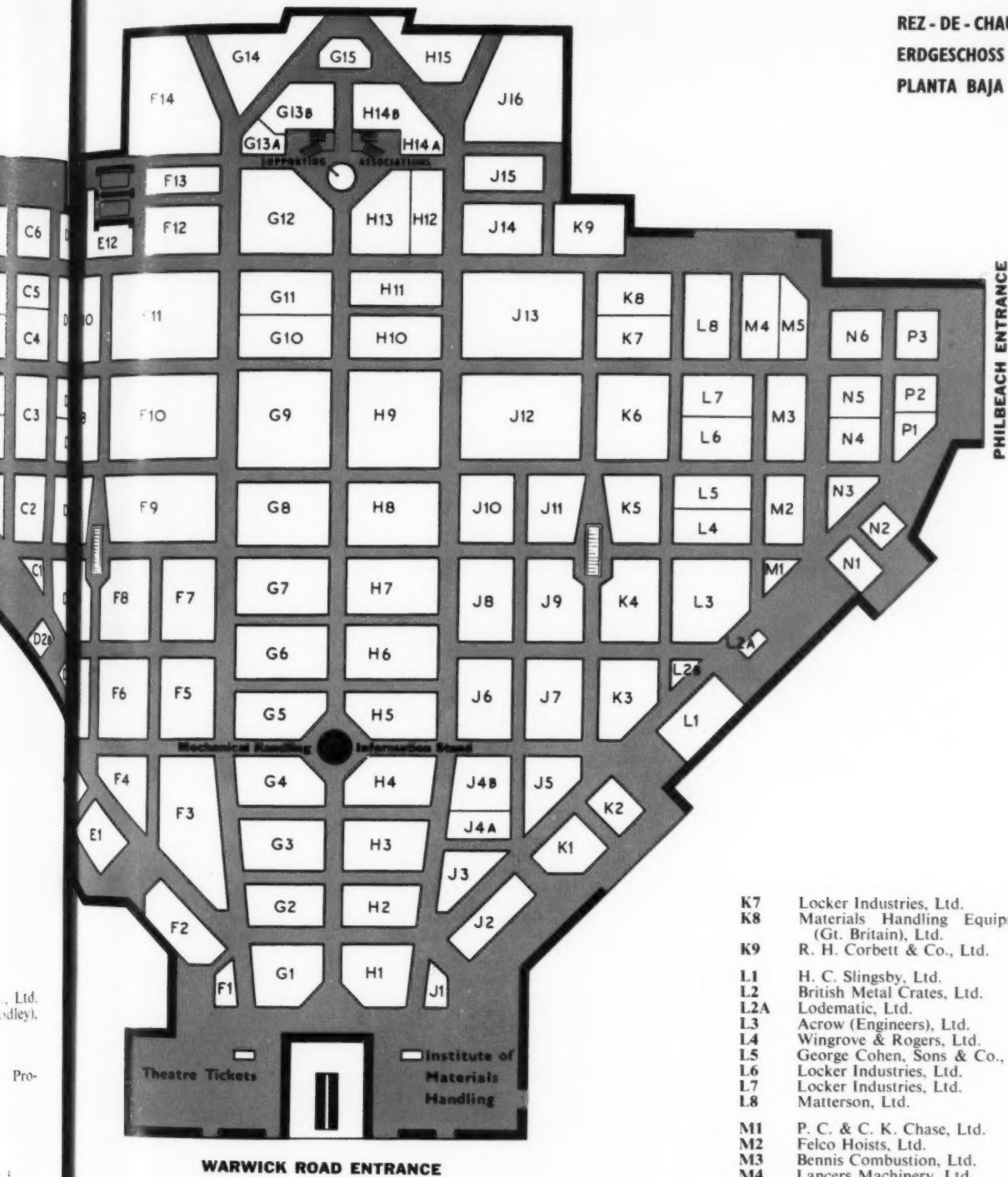
- G1 Didsbury Engineering Co., Ltd.
- G2 British Ropeway Engineering Co., Ltd.
- G3 Drag Scraper & Conveyor Co., Ltd.
- G3 Richard Sutcliffe, Ltd.
- G4 Matbro, Ltd.
- G5 Hugh Wood & Co., Ltd.
- G6 Shelvoke & Drewry, Ltd.
- G7 Ransomes & Rapier, Ltd.
- G8 Fourways (Engineers), Ltd.
- G9 Steels Engineering Products, Ltd.
- G10 Mercury Truck & Tractor Co., Ltd.
- G11 Priestman Brothers, Ltd.
- G12 The Yale & Towne Manufacturing Co.
- G13A Dialled Despatches, Ltd.
- G13B Grafton Cranes, Ltd.
- G14 Caterpillar Tractor Co., Ltd.
- G15 T. & T. Works, Ltd.
- H1 Matling, Ltd.
- H2 Teleflex Products, Ltd.
- H3 Mitchell Engineering, Ltd.
- H4 David Brown Industries, Ltd.
- H5 Simon Handling Engineers, Ltd.

- H6 Fred Myers, Ltd.
- H7 Leverton & Co., Ltd.
- H7 R. H. Neal & Co., Ltd.
- H8 Fisher & Ludlow, Ltd.
- H9 George Cohen, Sons & Co., Ltd.
- H10 Thos. Smith & Sons (Rodley), Ltd.
- H11 W. S. Barron & Son, Ltd.
- H12 Herbert Morris, Ltd.
- H13 International Combustion Products, Ltd.
- H14 Riley (IC) Products, Ltd.
- H15 Diac, Ltd.
- H15 Gardiner's Conveyors, Ltd.
- J2 A. L. Marshall (Carlton), Ltd.
- J3 Industrial Machine & Equipment Co. (Brimpex), Ltd.
- J4A Stewart Gill & Co., Ltd.
- J4B C. H. Johnson (Machinery), Ltd.
- J5 Salisbury Precision Engineering, Ltd.
- J6 J. Collis & Sons, Ltd.
- J7 Babcock & Wilcox, Ltd.
- J8A Butters Bros. & Co., Ltd.
- J8B Paterson Hughes Engineering Co., Ltd.
- J9 Ford Motor Co., Ltd. (Tractor Division)

WEST BROMPTON ENTRANCE



REZ - DE - CHAUSSEE
ERDGESCHOSS
PLANTA BAJA



PHILBEACH ENTRANCE

WARWICK ROAD ENTRANCE

- K7 Locker Industries, Ltd.
K8 Materials Handling Equipment (Gt. Britain), Ltd.
K9 R. H. Corbett & Co., Ltd.
L1 H. C. Slingsby, Ltd.
L2 British Metal Crates, Ltd.
L2A Lodematic, Ltd.
L3 Acrow (Engineers), Ltd.
L4 Wingrove & Rogers, Ltd.
L5 George Cohen, Sons & Co., Ltd.
L6 Locker Industries, Ltd.
L7 Locker Industries, Ltd.
L8 Matterson, Ltd.
M1 P. C. & C. K. Chase, Ltd.
M2 Felco Hoists, Ltd.
M3 Bennis Combustion, Ltd.
M4 Lancers Machinery, Ltd.
M5 C. J. R. Fyson & Son
N1 Jewsbury's Mechanical Handling, Ltd.
N2 E. P. Allam & Co., Ltd.
N3 Floataire, Ltd.
N4 Douglas Equipment, Ltd.
N5 Douglas Equipment, Ltd.
N6 British Hoist & Crane Co., Ltd.
P1 Service Engineering Co. (Northampton), Ltd.
P2 Vac-U-Lift (Great Britain), Ltd.
P3 Witlor, Ltd.

- J10 Fred Myers, Ltd.
J11 Leverton & Co., Ltd.
J12 G. Hunter (London), Ltd.
J13 I.T.D., Ltd.
J14 Conveancer Fork Trucks, Ltd.
J15 Herbert Morris, Ltd.
J16 Rubery Owen & Co., Ltd.
Powell Duffryn Engineering Co., Ltd.
K1 Winget, Ltd.
K2 Abisch Conveyor & Furnace Co. Ltd.
K3 The Mining Engineering Co., Ltd.
K4 Manufacturers Equipment Co., Ltd.
K5 Wessex Industries (Poole), Ltd.
K6 F. Taylor & Sons (Manchester), Ltd.

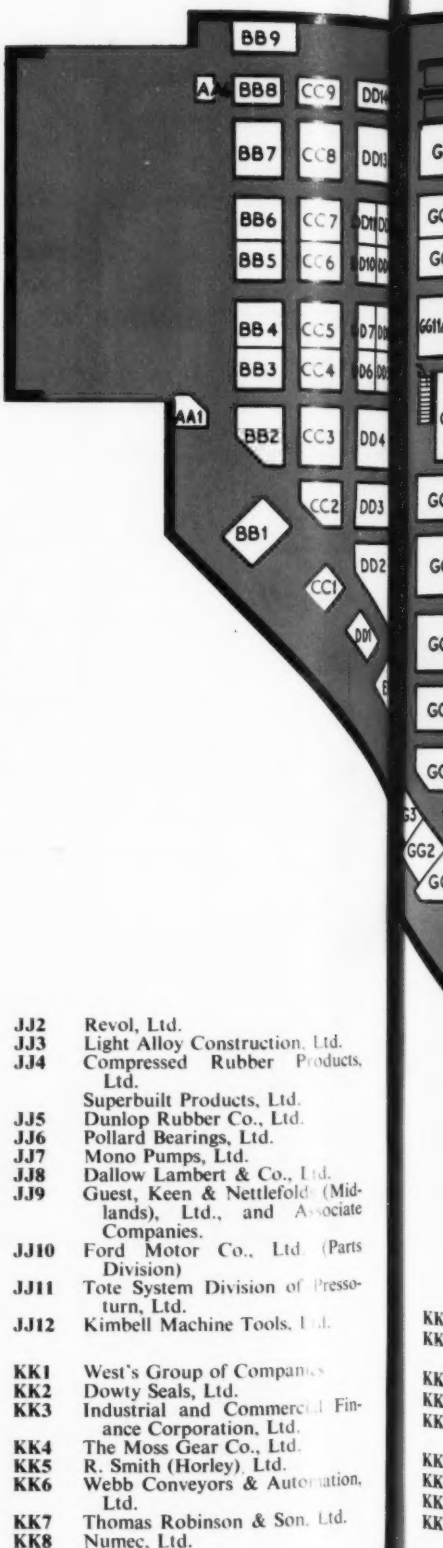


PLANS OF EXHIBITION

FIRST FLOOR

BB1 Tirfor, Ltd.
CC1 Richards Structural Steel Co., Ltd.
CC2 E. G. Irwin and Partners, Ltd.
CC3 Mann (Handling), Ltd.
CC4 British Nylon Spinners, Ltd.
CC5 British Nylon Spinners, Ltd.
CC6 F. E. Callow (Engineers), Ltd.
CC7 Westinghouse Brake & Signal Co., Ltd.
CC8A Promecon Mfg. Co., Ltd.
CC8B Tilgate Sawmills
CC9 Autoset (Production), Ltd.
DD1 Rolatruc, Ltd.
DD2 Rapid Magnetic, Ltd.
DD3 Maxam Power, Ltd.
DD4 Self-Changing Gears, Ltd.
DD5 Merrick Scale Manufacturing Co., Ltd.
DD6 Adrema, Ltd.
DD7 Gordon Felber & Co., Ltd.
DD8 Legg (Industries), Ltd.
DD9 Cordey Thomson
DD10 Scottish Mechanical Light Industries, Ltd.
DD11 Highfield Gear & Engineering Co., Ltd.
DD12 F. Piper & Sons, Ltd.
DD14 The Thames Packaging Equipment Co.
EE1 J. Glover & Sons, Ltd.
EE2 Cutler Conveyor Co.
EE3 Morse Chain Division & Hartcliffe Chains Division of Borg-Warner, Ltd.
EE4 Grading Machinery, Ltd.
EE5 Stein Atkinson Vickers Hydraulics, Ltd.
EE6 Martonair, Ltd.
EE7 The D.P. Battery Co., Ltd.
EE8 Gandy, Ltd.
EE9 Keelavite Hydraulics, Ltd.
EE10 Weston Works (Birmingham), Ltd.
EE11 Stephens Belting Co., Ltd.
EE12 F'Ag Bearing Co., Ltd.
FF1 Penfold Fencing & Engineering, Ltd.
FF2 Alexander Marcar & Co., Ltd.
FF3 The Plessey Co., Ltd.
FF4 Rogallo Engineering Co., Ltd.
FF5 Variatio-Strateline Gears, Ltd.
FF6 Westwood Dawes & Co., Ltd.
FF7 Lloyds Bank, Ltd.
FF8 Lawton (Successors), Ltd.
FF9 Scientific Automation, Ltd.

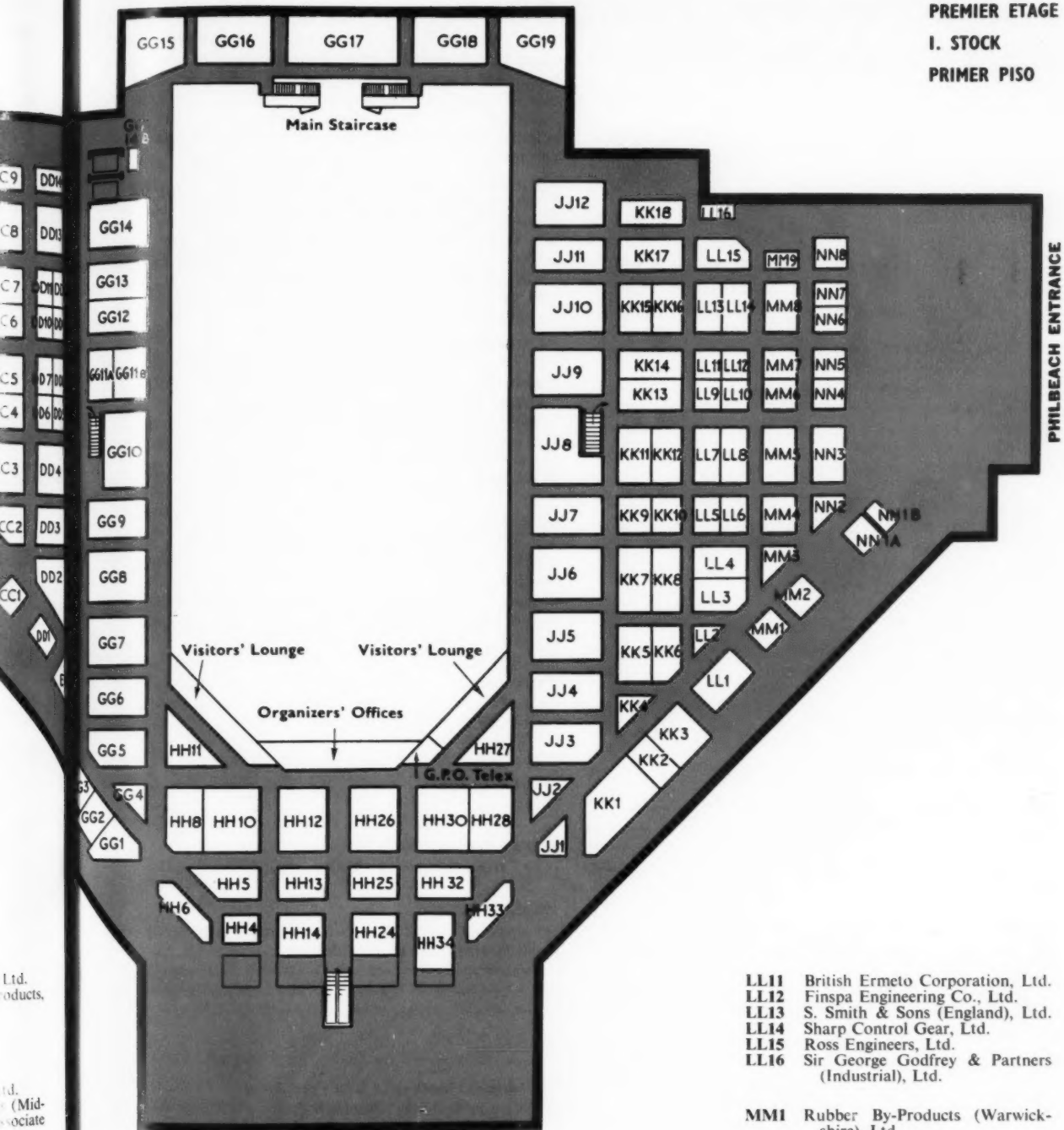
FF10 The Northern Manufacturing Co., Ltd.
FF11 Wheway Watson & McLean, Ltd.
FF12 Sheepbridge Equipment, Ltd.
FF13 William E. Cary, Ltd.
FF14 The Rawlplug Co., Ltd.
FF15 Dargue Brothers, Ltd.
GG1 Charrold, Ltd.
GG2 United Dominions Trust (Commercial), Ltd.
GG3 Barrow Hepburn & Gale, Ltd.
GG4 Hamworthy Engineering, Ltd.
GG5 W. E. Burnand & Son, Ltd.
GG6 Turner Brothers Asbestos Co., Ltd.
GG7 Chloride Batteries, Ltd.
GG8 The Goodyear Tyre & Rubber Co. (Gt. Britain), Ltd.
GG9 Brookhirst Igranic Co., Ltd.
GG10 BTR Industries, Ltd.
GG11A Hydraulics & Pneumatics, Ltd.
GG11B S. E. Opperman, Ltd.
GG12 Dowty Hydraulic Units, Ltd.
GG13 Associated Electrical Industries Ltd.
GG14 Associated Electrical Industries, Ltd.
GG14B Technivision, Ltd.
GG15 The Metal Box Co., Ltd.
GG16 Flexello Castors & Wheels, Ltd.
GG17 Perkins Engines, Ltd.
GG18 Brockhouse Engineering, Ltd.
GG19 Renold Chains, Ltd.
HH4 Krausskopf Verlag
HH5 Accles & Pollock, Ltd.
HH6 E. Stephens & Son, Ltd.
HH8 Neco Geared Motors, Ltd.
Normand Electrical Co., Ltd.
Dexion, Ltd.
HH10 Fluidrive Engineering Co., Ltd.
HH11 Crofts (Engineers), Ltd.
HH12 Helicoid Flight Conveyors, Ltd.
HH13 Wharton Engineers (Elstree), Ltd.
HH14 Lang Pneumatic, Ltd.
HH24 Electro-Hydraulics, Ltd.
HH25 Midland Bank, Ltd.
HH26 Super Oil Seals and Gaskets, Ltd.
HH27 The English Electric Co., Ltd.
HH30 British Electrical Repairs, Ltd.
HH32 Electropower Gears, Ltd.
HH33 Baldwin Industrial Controls
HH34 Conveyancer Fork Trucks, Ltd.
JJ1 E. G. Steele & Co., Ltd.



PREMIER ETAGE

I. STOCK

PRIMER PISO



WARWICK ROAD ENTRANCE

KK9 Acrow (Engineers), Ltd.
 KK10 Joseph Lucas (Hydraulic & Combustion Equipment), Ltd.
 KK11 Alfred Wiseman & Co., Ltd.
 KK12 Samuel Denison & Son, Ltd.
 KK13 Daycock Engineering, Ltd.
 KK14 Oldham & Son, Ltd.
 KK15 John Holroyd & Co., Ltd.
 KK16 S. S. Stott, Ltd.
 KK17 White, Child & Beney, Ltd.

KK18 Nife Batteries
 LL1 Allspeeds, Ltd.
 LL2 The Lampeter Timber & Trading Co., Ltd.
 LL3 A. Schrader's Son, Division of Scovill Mfg. Co.
 LL5 Mucon Engineering Co., Ltd.
 LL6 S. Parsons & Co., Ltd.
 LL7 Epco, Ltd.
 LL9 Metal Products (Arden), Ltd.
 LL10 Spenborough Engineering Co., Ltd.

LL11 British Ermeto Corporation, Ltd.
 LL12 Finspa Engineering Co., Ltd.
 LL13 S. Smith & Sons (England), Ltd.
 LL14 Sharp Control Gear, Ltd.
 LL15 Ross Engineers, Ltd.
 LL16 Sir George Godfrey & Partners (Industrial), Ltd.

MM1 Rubber By-Products (Warwickshire), Ltd.
 MM2 West Dock Timber Co., Ltd.
 MM3 Murphy Radio, Ltd.
 MM4 E.M.S. Electrical Products, Ltd.
 MM6 Silvertown Rubber Co., Ltd.
 MM7 C.A.V., Ltd.
 MM8 Strappings, Ltd.
 MM9 Lee Cases, Ltd.

NN1A Zinc Alloy Rust Proofing Co., Ltd.
 NN1B Antifyre, Ltd.
 NN2 Glenaldie Woodworking & Engineering Co., Ltd.
 NN3 Electromagnets, Ltd.
 NN4 Light Alloy Construction, Ltd.
 NN5 William Kenyon & Sons, Ltd.
 NN6 Carter Gears, Ltd.

FACILITIES FOR VISITORS AT THE EXHIBITION

The Organizers' Enquiry Offices
A centre to provide all information for both visitors and exhibitors. H. A. Collman is the Exhibition Manager.



H. A. Collman

'Mechanical Handling' Information Stand

This is located in the centre aisle on the ground floor. It has access to the Organizers' enquiry offices which are situated on the first floor, and provides information concerning the exhibition services and the staff also deal with general enquiries concerning exhibits and particular information on mechanical handling problems.

Film Theatre

A continuous programme of films will be shown in the Theatre throughout the period of the Exhibition. Entry to the Film Theatre is on the right of the Exhibition Hall on entering from Warwick Road Entrance.

Associations' Stand

Here are represented the five main Supporting Associations, viz., Mechanical Handling Engineers' Association, Association of Crane Makers, Aerial Ropeways' Association, British Industrial Truck Association and the Association of Lifting Tackle Makers. Technical information relating to mechanical handling is also obtainable on this stand, and contacts can be arranged with all the Associations' Members.

Institute of Materials Handling Stand

This is located on the right immediately inside the Warwick Road Entrance and visitors will be welcomed to discuss the Institute's activities and any matters relating to materials handling.

Overseas Visitors' Reception

All Overseas visitors are asked to announce their arrival at the Overseas Reception Lounge in the Foyer at the Warwick Road Entrance. A staff of interpreters are available to provide visitors with exhibition material.

overseas badges and all information regarding the Exhibition.

Press Reception

This will also be located in the Warwick Road Foyer, and Mr. Derek Page, the Press Officer, and his staff will be available to answer enquiries. Complete detailed analyses of the principal exhibits are available to the Press, together with specific information on new items on display.

International Telex System

As a special service to visiting buyers and to exhibitors, the organizers of the Mechanical Handling Exhibition have arranged the installation of the International TELEX System. It is situated on the first floor of the Exhibition Hall adjoining one of the visitors' lounges and will provide fast and reliable communication *in print* to business centres throughout Britain and in many countries overseas.

Restaurants

All the restaurants for the Exhibition are on the South side of the Exhibition Hall and are suitably signposted. They comprise Visitors' Restaurant with table d'hôte service and Executives' Restaurant with à la carte menu. Teas are also served in these restaurants.

Bars and Buffets

There are six bars on the ground floor and five on the first floor. In addition there are lounges on the mezzanine floor for morning coffee and alcoholic drinks.

Post Office

Situated adjacent to the South Restaurant on the mezzanine floor.

Lost Property Office

is in the cloakroom at the Warwick Road Entrance.

Theatre Tickets

are obtainable from the Keith Prowse kiosk at the Warwick Road Entrance to the Exhibition.

For easy location of all the above facilities reference should be made to the plans of the Exhibition to be found in the official catalogue and on pages 256-259 of this issue.

FILM PROGRAMME

Entry to the Film Theatre is on the right of the Exhibition Hall from Warwick Road entrance.

Titles and brief synopses of films to be shown during the Exhibition.

Prelude to Power

A colour film showing various types of mechanical handling equipment including aerial ropeways, cranes and mixing plant used in the construction of the Castelo do Bode Dam in Portugal.

Mechanical Handling Engineers' Association

Mechanical Handling in Iron Production

A film produced by the Mechanical Handling Engineers' Association dealing with the handling of iron ore, limestone, coke, etc., and introducing the world's largest walking dragline, mechanical shovels and the carrying of material by belt conveyors and aerial ropeways to loading station and into railway wagons.

Mechanical Handling Engineers' Association

Goliath

Describing the largest Goliath crane in the world 250 ft high and lifting 400 tons to a height of 200 ft.

Babcock & Wilcox, Ltd.

Handling Logs

This film shows how logs of various sizes delivered to a pulp mill are handled mechanically, stripped of their bark, inspected and graded.

Bennis Combustion, Ltd.

Mechanical Handling Plant at Sudbrook Pulp Mill

Describing a handling installation at a pulp mill dealing with logs in the form of green timber by means of conveyors and elevators, delivery to barking machines and the transporting of logs to a chipper and the delivery of chips through a vibrating screen.

Bennis Combustion, Ltd.

Coal Cleaning and Handling Practice

Covering the preparation of Run-of-Mine coal to suit the various markets for steam raising, carbonizing and domestic fuels.

Birtley Engineering, Ltd.

Itua Monocable Ropeway

Showing the transporting of Limestone from a quarry to a cement works in Brazil.

British Ropeway Engineering Co., Ltd.

Chairlifts come to Britain

Depicting a Passenger Chairlift at a Holiday Camp in Scotland.

British Ropeway Engineering Co., Ltd.

Fundamentals of Earthmoving

Selection of the correct type of earthmoving equipment for particular jobs.

Caterpillar Tractor Co., Ltd.

Featuring Jones Cranes

Illustrating the more important features of the Jones range of mobile cranes. The film is of value to potential crane users to decide upon the type of machine best suited to their particular needs.

The George Cohen 600 Group, Ltd.

A Load off your Mind

A colour sound film dealing with the HIAB Lorry Loader for the purpose of obtaining a quicker turn-round of road transport. It also deals with such special handling problems as pipe-laying and the erection of lighting columns.

The George Cohen 600 Group, Ltd.

Space Control

Showing the operation of Conveyancer Fork Trucks in different industries including handling operations on deck of Aircraft Carrier, Brewery handling systems, the handling of bags of sugar and the loading of refrigerated vehicles.

Conveyancer Fork Trucks, Ltd.

The Care and Maintenance of Conveyor Belting

The Dunlop Rubber Co., Ltd.

Conveyors Cut Costs

Illustrating the flowline system of conveying as marketed by Fisher & Ludlow, Ltd.

Fisher & Ludlow, Ltd.

The Cargon Freightling System

Depicting the Cargon System of handling for vehicles consisting of a mobile deck mounted on wheels which is loaded on and off a vehicle.

Cargon Transport (G.B.), Ltd.

Pallet Loader

New type of automatic pallet loader for dealing with unit loads in handling problems.

Lamson Engineering Co., Ltd.

Golden Valley

Use of conveyor belts in the construction of the Shasta Dam.

The Goodyear Tyre & Rubber Co. (G.B.), Ltd.

Neway Flexible Doors

Showing the use of rubber doors in industry and their advantage in time-saving in the operation of fork trucks between one department and another.

W. Langley & Co., Ltd.

Mechanized Muscle on Show

Presenting the Lansing Bagnall range of trucks under operating conditions in warehouses and factories, including a sequence on cold storage applications, a relatively new field in trucking.

Lansing Bagnall, Ltd.

A Measure of Maxam

Showing the application of pneumatic control in industry with some examples of pneumatic conveyors.

Maxam Power, Ltd., Holman Bros., Ltd.

Dempster-Dumpster System at Work in Industry

Illustrating this system of specially equipped vehicles with detachable containers for dealing with process materials, by-products and waste materials.

Powell Duffryn, Ltd.

Dempster-Dinosaur at Work

The machine mechanically picks up, transports, sets down or empties its own body of 10, 20, 30 or 40 cu. yd. capacity, with the entire operation controlled from the driver's cab.

Powell Duffryn, Ltd.

Rapier Heavy-duty Fork Trucks

Illustrates some of the wide range of industries in which heavy-duty fork trucks are used. It demonstrates the greater adaptability of the fork trucks when fitted with the patented Cantilever Jib.

Ransomes & Rapier, Ltd.

On Time

A complete coverage of electric industrial trucks operating in several railroad shops and yards. It covers handling of baggage, mail, freight, locomotive and car overhauling and general shop handling.

The Yale & Towne Manufacturing Company

The Cortina Story

This describes the construction from Dexion Angle of the 1956 Winter Olympic scoreboard at Cortina d'Ampezzo.

Dexion, Ltd.

Grandstands into Ploughshares

This describes the construction by means of Dexion Angle of the Grandstands for the Independence Celebrations in Ghana in 1957.

Dexion, Ltd.

Fruit Handling

This film depicts fork lift trucks and straddle trucks handling boxed fruit at an orchard and in a cannery.

Fred Myers, Ltd.

Handling Aboard Ship

Showing a Hyster fork lift truck fitted with a revolving paper roll grab working in the holds of a ship.

Fred Myers, Ltd.

Turning the 'Queen Mary' Round

This film illustrates the use of fork lift trucks for handling cargo enabling the large liner to effect a big saving in turn-round time.

Fred Myers, Ltd.

It's in the Air

Demonstrating the various industrial and transport applications of the Westinghouse pneumatic equipment for the control and operation of plant, such as, excavators, ships engines, rail-cars, hopper doors and aircraft runway sweepers.

Westinghouse Brake & Signal Co., Ltd.

Mechanical Handling in a Modern Gasworks

Hugh Wood & Co., Ltd.

Tour of Crown Works

Showing the manufacture and applications in industry of the range of Coles Mobile Cranes.

Steels Engineering Products, Ltd.

The Human Pull Mechanized

An interesting film showing various applications of the Tirfor Machines for pulling and lifting.

Tirfor, Ltd.

Belting the Burden

Covering the Goodyear system of pneumatic idlers in conveying.

The Goodyear Tyre & Rubber Co. (G.B.), Ltd.

Suspension Cranes

Showing the manufacture, installation and operation of new suspension cranes installed at London Airport.

Acrow (Engineers), Ltd., Acrow-Demag Division

Operation Handling

The application of side-operating fork lift transporters with lifting capacities of 15 tons and 20 tons, with particular suitability for long loads.

Materials Handling Equipment (Gt. Britain), Ltd.



Preview of Exhibits

AT THE MECHANICAL HANDLING EXHIBITION, Earls Court, London, S.W. Tuesday, May 3rd, to Friday, May 13th, inclusive. Open daily, except Sunday, 10 a.m. to 6 p.m.

The following are brief details of the products to be shown, given in A-Z order under exhibitors' names for easy reference. The illustrations, in some instances, show typical installations which firms concerned have installed. Details of them can be obtained by enquiring at the appropriate stand. The organizers of the Exhibition are not in any way responsible for statements made in connection with the exhibits, particulars of which have been supplied by the various exhibitors.

ABISCH CONVEYOR & FURNACE CO., LTD.

Stand No. K2

Wire mesh belt conveyors will form the major exhibits on this manufacturer's stand. Of particular interest will be the wire mesh bends on view, which can be supplied in 90 deg, 180 deg, or 360 deg bends. The company not only manufactures the conveyor and its structure but also the wire mesh belt itself.

ACCESS EQUIPMENT, LTD.

Stand No. B5

The Access wall spider, a power-operated, suspended platform for building and equipment maintenance—especially on high, awkward locations, will be on show for the first time.

Other exhibits will include Bicep hydraulic lifters, designed to feed and position materials between differing levels, the Access 'Beanstalk' hydraulic telescope work platform and other items of Access Equipment.

ACCLES & POLLOCK, LTD.

Stand No. HH5

The variety of tube production and design offered by this manufacturer will be well demonstrated by the many examples of their work that will be exhibited.

Stainless thin-walled tubing, tubular special sections, finned tubing in aluminium, seamless flexible tubing, welded stainless steel tubing—these examples are only a few of the types and materials that will be on show.

ACROW (ENGINEERS), LTD.

Stand No. L3 and KK9

A sectional model of the new Acrow Demag 'P' type wire rope electric hoist will be on display, together with other examples of this hoist with capacity ranges of from 5 cwt to 10 tons. A new type of Acrow Demag suspension crane tracks transfer monorail of 3 tons capacity will also be shown. This piece of equipment is automatically controlled including the electrically operated locking gear.

Other items exhibited will include examples of this company's range of crane components, Acrow Vahle

conductor equipment and Acrow Demag self-braking electric motors.

ADREMA, LTD.

Stand No. DD6

A large section of this stand will be devoted to the range of Bradma mailing machines. Specialists in the design and manufacture of folding, inserting and sealing machines, the equipment on show will include the Bradma 'Inserta' and 'Magazine Inserta'.

The 'Inserta' is a combined folding, inserting and sealing machine, designed to enclose invoices, leaflets, parts lists, etc., in envelopes, and has an operating speed of 3,600 pieces handled per hour from folding to sealing and counting.

The 'Magazine Inserta' has automatic magazine and envelope feeds, whereby magazines, manuals, etc., are fed into the envelopes for full or business postal rates and counted and stacked in one continuous operation at an output rate of 2,800 filled envelopes per hour.

Other items exhibited and demonstrated will include a range of power and hand-operated Bradma Business Systems equipment based on the well-known embossed metal plate method.

E. P. ALLAM & CO., LTD.

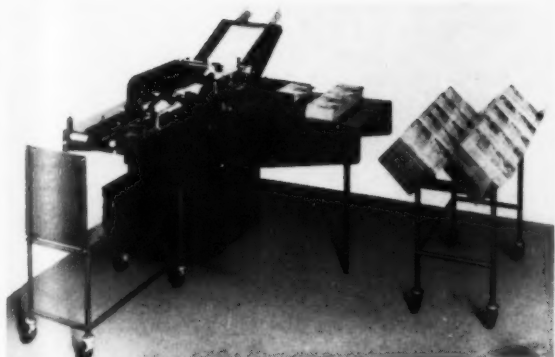
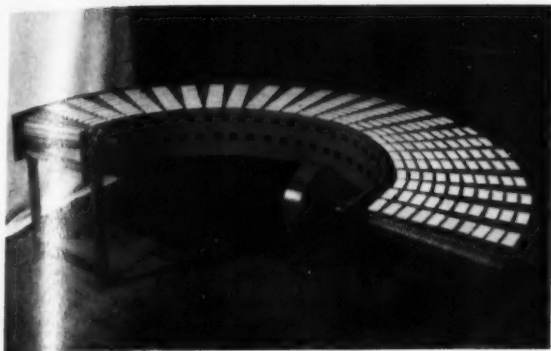
Stand No. N2

Vibrators, and examples of their very wide variety of applications, will form the main theme of this display. Examples will include the normal rotating vibrator motors and the electro-magnetic type. Other exhibits will include variable frequency vibrating screens, vibrating feeders, and a combined vibrating screen and conveyor.

ALLSPEEDS, LTD.

Stand No. LL1

Of particular interest on this stand will be an exhibit demonstrating the high degree of sensitivity of the speed control on this company's variable-speed gears. A working unit from their wide range of gears has been set up so that visitors can change the speed by passing their hand across photo-electric cells. In normal application the speed setting



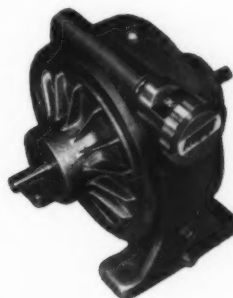
A 1½-ton capacity Bicep used for transferring paper and printed matter from one floor level to another in a large printing works in London. Safety guards have been removed to show scissor mechanism. (Access Equipment, Ltd.)

(Top left) 180-deg wire mesh bend made by Abisch Conveyor & Furnace Co., Ltd.

(Centre left) The Inserta combined folding, inserting and sealing machine. (Adrema, Ltd.)

(Left) 'Move-on' self-propelled staging model 'B'. The operator mounting the machine at its maximum working height of 15-16 ft. (Anderston Clyde Engineers, Ltd.)

(Below) 1½-h.p. Kopp variable-speed gear. (Allspeeds, Ltd.)



control can be linked to mechanical, electronic, pneumatic or temperature methods of automatic control.

Another form of control, a 'Speed Corrector Unit', specially developed for use on any type of winding equipment where a constant peripheral speed or feed is required, will also be exhibited.

Models of Kopp variable-speed gears will be displayed, these are available in fractional to 15-h.p. ratings and will include units with free shaft ends, flange-mounted motors, built on reduction gears, and one specially designed for vertical mounting.

ANDERSTON CLYDE ENGINEERS, LTD.

Stand No. B2

The exhibits to be shown on this stand include the 'Colossus'



portable self-erecting gantry, this has a capacity range of from $\frac{1}{2}$ ton-100 tons and combines great stability with simplicity of operation. Two forms of mobile work platform will also be exhibited—the 'Spaceman', hydraulically operated, is made in four sizes with respective working heights of 21 ft, 26 ft, 30 ft and 40 ft, the 'Move-on' is a self-propelled staging and can be supplied with working heights of 11 ft or 16/17 ft. An advantage of this latter type of staging is that the worker can propel himself backwards and round corners without descending to ground level.

THE ANGEL TRUCK CO., LTD.

Stand No. E2

The latest models of hand- and power-operated materials handling equipment produced by this company will form their main exhibits. This equipment, constructed in both timber and steel, covers a wide range of trucks, trolleys and lifting appliances.

ANTIFYRE, LTD.

Stand No. NN1B

The principal exhibit by this firm will be the Antifyre Pistole, a dry-chemical extinguisher. This is particularly recommended for use in cases of fire involving petrol, bottled gas and electrical equipment, as it can effectively deal with 20 ft of flames in one second.

Among other items on show will be the Antifyre Alert T soda acid extinguisher which has a safety feature in that it will not go off if accidentally overturned. The Quickfix folding fire escape, a portable folding escape which can be quickly erected to form a rigid ladder in cases of emergency, will also be on display.



The new A.E.I. Type NC medium-size drip-proof, squirrel-cage induction motor with Class 'E' insulation and temperature rise of 65 deg C, which is available up to 285 h.p. (Associated Electrical Industries, Ltd.)

ASSOCIATED ELECTRICAL INDUSTRIES, LTD.

Stand No. GG13 and GG14

An example of the new A.E.I. Type NC medium-size drip-proof, squirrel-cage induction motor with Class 'E' insulation and temperature rise of 65 deg C, which is available up to 285 h.p., will be shown by A.E.I. Motor and Control Gear Division, together with already established types of industrial motors.

Among the fractional horsepower motors will be a new type of D.C. machine, and the display will also include single and multi-motor starters and control gear, switches, geared motor units of many types, and a newly developed type of hydraulic brake.

Many of the exhibits will be sectionalized working models.

ASSOCIATIONS GROUP STAND

Stand No. Central Group Floor Aisle

This will be a joint stand representing the principal organisations within the Mechanical Handling Industry, including the following:—

AERIAL ROPEWAY ASSOCIATION,

94-98 Petty France, London, S.W.1.

Telephone: Abbey 4961.

ASSOCIATION OF CRANE MAKERS,

52 Lincoln's Inn Fields, London, W.C.2.

Telephone: Holborn 2662.

ASSOCIATION OF LIFTING TACKLE MAKERS,

Chamber of Commerce, 95 New Street, Birmingham 2.

Telephone: Birmingham (Midland) 5021.

BRITISH INDUSTRIAL TRUCK ASSOCIATION,

94-98 Petty France, London, S.W.1.

Telephone: Abbey 7226.

MECHANICAL HANDLING ENGINEERS' ASSOCIATION,

94-98 Petty France, London, S.W.1.

Telephone: Abbey 4961.

Copies of the 1960 edition of the 'International Illustrated Dictionary', well illustrated, and with descriptions written in seven languages, will be available for free distribution from the stand, together with other catalogues and general information relating to the various activities of the associations.

AUTOSET (PRODUCTIONS), LTD.

Stand No. CC9

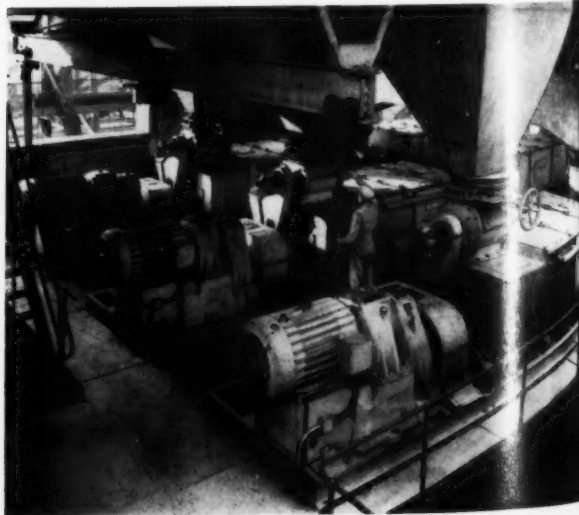
A representative display of this company's range of wheels and castors, with load-bearing capacities of up to 6 tons, will be exhibited. Other fittings shown on the stand will include internal expanding brakes, leaf and rubber suspension, Ackerman steering, jacking and direction locking equipment. Friction eliminators, drawer slides in various lengths, conveyor bearings and engineers' clamps are some of the other items that will be on show.

BABCOCK & WILCOX, LTD.

Stand No. J7 & WBF No 1.

Displays including a paddle-type mixer, rotary feeders, conveying equipment and a Hyjector pump for transporting

An example of a 'Babcock' paddle-type mixer-conveyor. (Babcock & Wilcox, Ltd.)





Overlapping tray conveyors made by Bagshawe & Co., Ltd., in use at the works of Leyland Motors, Ltd.

liquid solids mixtures will illustrate the versatility of Babcock materials handling equipment—especially with regard to bulk handling such materials as coal, ash, ore, sand and chemical products.

There are also special exhibits showing new designs of cranes of welded plate construction and a working model demonstrating the erection of the world's largest Goliath crane.

BAGSHAWE & CO., LTD.

Stand No. F8

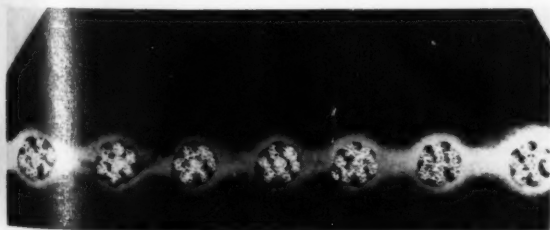
Conveyors for handling swarf will be features of this exhibit. A drag link conveyor and an overlapping tray type conveyor will both be continuously run and loaded during the exhibition. Other items displayed will include a light type of overhead chain conveyor and a selection of roller conveyor, malleable iron chains, heavy-duty chain, and sundry conveyor accessories.

BALDWIN INDUSTRIAL CONTROLS.

Stand No. HH33

One of the main exhibits to be displayed by this company will be a working model illustrating the handling of proprietary articles by air power. A complete range of fluid power equipment, with particular emphasis on the application of low-pressure air and hydraulic equipment in relation to automation and mechanical handling will also be on view.

Section through the Mitcham new steel cord belt. (Barrow Hepburn & Gale, Ltd.)



On public display for the first time will be the Baldwin air drive unit. Designed as a fully automatic power tool, its features are the automatic control of operation sequence and its ability to accommodate various tool holders for drilling and tapping. It can also be used to provide automatic lateral thrust with an accuracy of ± 0.005 in.

W. S. BARRON & SON, LTD.

Stand No. H11

The main exhibits on this stand will feature this company's screw elevators and conveyors. On show will be a 12-in dia 'Screw Lift' elevator 50 ft high with a 6-ft feed, a 6-in dia screw elevator and 15-ft long 'Super-Flo' screw conveyor test rig. Some of these examples will have cutaway or Perspex sections to show the working mechanism. Also on view will be a pneumatically operated slide, a 6-in dia twin-worm bin discharger and a 'Vibra' feeder.

BARROW HEPBURN & GALE, LTD.

Stand No. GG3

Two items of particular interest that will be exhibited by this company are the Wagener/Barrow Hepburn & Gale portable vulcanizing press and a steel cord conveyor belt. The repair press has been specially designed to allow one man to handle the unit in very restricted places without sacrificing any loss in the robustness of the equipment or the effectiveness of the repairs to conveyor belting.

The steel cord conveyor belt employs steel cords embedded in the rubber (no fabric is used in this belt) in the work direction only. An indication of the resultant combination of strength and flexibility is the claim that a belt with a breaking strain of more than 10 tons per inch of width can work satisfactorily round a 36-40-in dia drum.

A representative selection of conveyor belt materials manufactured by the company and examples of hydraulic and mechanical leathers will also be displayed.

Becker floor-to-floor elevator. (Becker Equipment & Lifts, Ltd.)





BECKER EQUIPMENT & LIFTS, LTD.

Stand No. D8

The Becker Floor-to-Floor elevator, a completely self-contained unit with capacities of $\frac{1}{2}$ ton to 20 tons will be one of the main exhibits featured by this company. Other items will consist of various applications of the Becker Exact Volume Exuder equipment, including a can-filling unit, a Bexuda jam depositor and a multi-head automatic unit incorporating 10 nozzles designed to fill 10 table jelly moulds every four seconds.

BENNIS COMBUSTION, LTD.

Stand No. M3

On display will be the Bennis Loadstack, a 35-ft portable conveyor, the Bennis high-speed screw elevator and a Saxon vibratory screen.

The Loadstack can be fed direct from lorries or grabs and conveys material to stock piles. Features include hydraulic raising and lowering of boom and stability ensured by mounting on four pneumatic-tyred wheels. All four wheels can be swivelled through 90 deg for lateral movement or arcing.

E. BOYDELL & CO., LTD.

Stand No. F6

Four models from the company's range of powered mobile loaders will be on display at this stand. Two examples are the Muir-Hill FD2 1-cu. yd. loader designed for confined space working, sticky ground conditions and down-hill loading, and the Muir-Hill RD2 loader of 1-cu. yd. capacity for general loading operations. Other exhibits will include a compact, hydraulic loader, the LH1, the Muir-Hill 3S dumper with air-cooled diesel engine, and the Muir-Hill pneumatic-tyred, diesel-powered shunter.

BRAY CONSTRUCTION EQUIPMENT, LTD.

Stand No. E11

Shown for the first time is the new Centaur tractor, which is a four-wheel drive tractor with crawler performance. It is available as a ploughing tractor with a five-furrow plough mounted at either end for one-way ploughing, or with a dozer blade and logging winch.

Three Bray tractor shovels will also be featured on this stand. Model BL 460T with side tipping bucket, model

BL 430 fitted with a Hydraclamp attachment, and the 90-h.p. four-wheel-drive model BL 455T with a fork lift attachment. An HL 23 loading shovel will be shown.

BRITISH ELECTRICAL REPAIRS, LTD.

Stand No. HH30

Lifting devices for the handling of paper reels, drums, pipes, and a variety of cylindrical loads will be displayed by this company. The paper reel device is of the bore-hole type, whereby the act of raising the reel causes the device to grip the core of the reel. A special advantage is that the reel can be raised and lowered from and to either the vertical or horizontal position—capacity range is from 15 cwt up to 2½ tons. Examples of woven wire flexible flat band slings, chains and ropes, and an electro-magnet lifting demonstration will also be exhibited.

BRITISH HERMETO CORPORATION, LTD.

Stand No. LL11

A representative display of high-pressure pipeline couplings and valves, high-pressure flexible hose and hose end connections will be seen on this stand. For users of high-pressure flexible hose the Twin-Saddle re-usable hose end connection will be of particular interest. This provides a simple means of coupling high-pressure industrial hose and consists of a steel insert and two forged steel saddles which interlock with it—the whole being secured by two or more steel bolts. With their robust construction and simplicity in assembly, these connections are especially suitable for heavy-duty plant, such as earth-moving equipment, where service conditions are particularly severe.

An associate company—Simplifix Couplings, Ltd.—will be showing a wide range of brass compression couplings for use on copper pipe and plastic-covered copper tube. Brass fittings for use on nylon tube will also be shown.

BRITISH HOIST & CRANE CO., LTD.

Stand No. N6

The Iron Fairy VI, a 6-ton all-hydraulic mobile crane, will be the main exhibit on this stand. One of its most interesting features is the dual function of the two forward mounted rams; these not only raise and lower the jib but also control the 45-deg slewing action.

A 5.1-litre Newage B.M.C. diesel engine is the main

Muir Hill FD2 1-cu. yd. loader. (E. Boydell & Co., Ltd.)



90-h.p. four-wheel tractor shovel. (Bray Construction Equipment, Ltd.)



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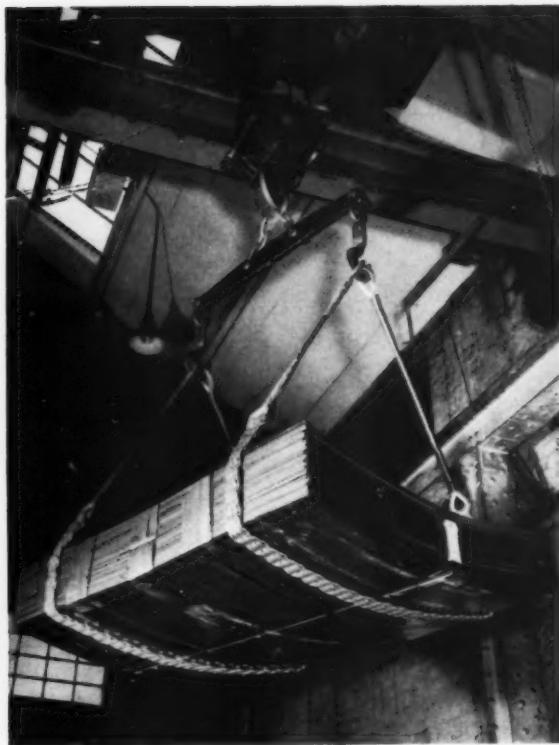
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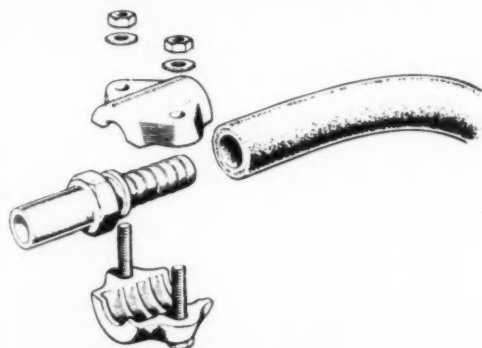
it, Ltd.)



Iron Fairy 6 mobile crane in use by Murex, Ltd. (British Hoist & Crane Co., Ltd.)



Woven wire flat band slings with special steel rope end attachments suspended from a lifting beam. (British Electrical Repairs, Ltd.)



(Left). 'Exploded' drawing of a twin-saddle hose end. (British Ermeto Corporation, Ltd.)

(Below left). A light, sturdy collapsible crate that folds flat. (British Metal Crates, Ltd.)

power unit and this, through the gearbox, drives a dual hydraulic pump unit which gives hydraulic power for all movements of the jib and also for the variable speed hoisting winch.

BRITISH METAL CRATES, LTD.

Stand No. L2

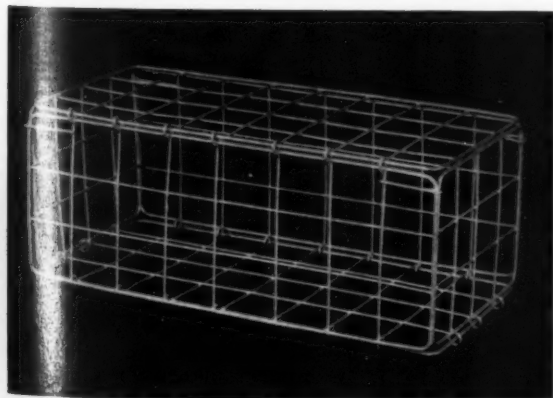
The exhibits on this stand will present examples of this company's extensive range of crates, stillages and pallets. Special designs include ones for degreasing gear parts, grocery baskets in welded wire, cheese trays for the cotton and silk industry and collapsible wire mesh crates. Movable storage racks on castors will also be featured.

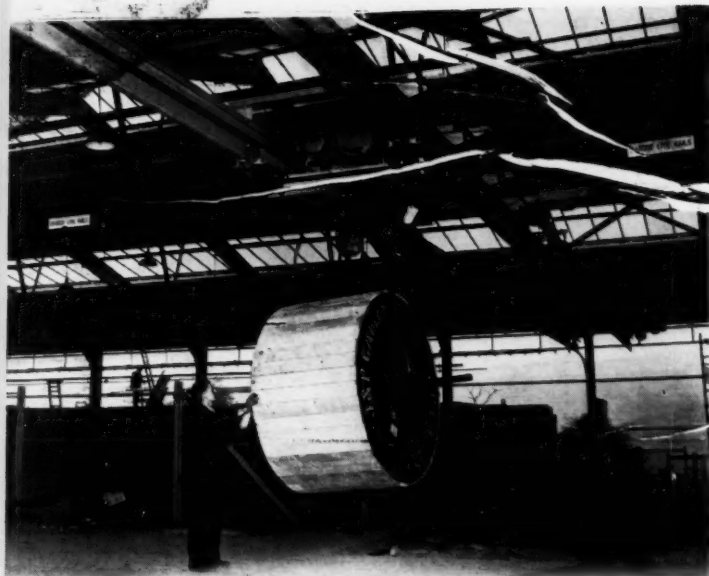
BRITISH MONORAIL, LTD.

Stand No. D4

The first public demonstration of this company's overhead crane system will be the main exhibit at this stand. Essentially, the system consists of two or more suspended longitudinal runways, attached to convenient roof members and running the full length of the area, it is desired to service. Trolleys running on the lower flanges of the runway support the crane bridge, which can be up to 200 ft long, dependent on the span of the desired operational area. Crane hoists of up to 5 ton capacity are carried by trolleys running along the crane bridge and the whole system is fully motorized.

Special features that can be incorporated with this arrangement include the transfer of loaded hoists between bridges in adjacent working bays, across standard British





2-ton 90 ft span, four-track underslung crane, being used during the construction of a new building at Arthur Lee & Sons, Ltd. (British MonoRail, Ltd.)

Monorail interlocks and transfer sections, the number of bridges can be increased on the same runways to give additional handling capacity and the facility of having two or more separate bridges in the same bay which can, when they are parallel to each other, be interlocked to allow loads to traverse the full span of the bay.

The stand exhibit crane will have a 40 ft span and will run on three parallel runways. Fully motorized, it will be equipped with a 2-ton hoist. A smaller 1-ton manually operated crane will also be shown running on two of the three runways occupied by the 2-ton crane.

BRITISH NYLON SPINNERS, LTD.

Stand No. CC4 & 5

New types of conveyor belting containing nylon in both warp and weft are the main feature of the display, they have been developed to meet the ever more rigorous demands of modern industry.

Examples of the many and varied usages of nylon, including conveyor belting, rope slings, cargo nets and tarpaulins will also be featured. The characteristics of inherent strength, impact resistance, resistance to rot, pliability and lightness of the material will be illustrated in the nature and usage of the articles on show.

BRITISH ROPEWAY ENGINEERING CO., LTD.

Stand No. G2

Three main exhibits will be displayed by this company: a 22 ft long working model, scale 1 in to 1 ft, of a Passenger Chairlift similar to that already working at a zoo in this country but with chairs arranged for two persons. A full-scale example of a two-seater passenger cabin currently being supplied for a Passenger Chairlift installation in the British Isles, and a Magnetic Wire Rope Defectograph. This latter piece of equipment will be shown testing a portion of steel wire rope which has deliberately had a flaw introduced into its internal construction.

BRITISH WEDGE WIRE CO., LTD.

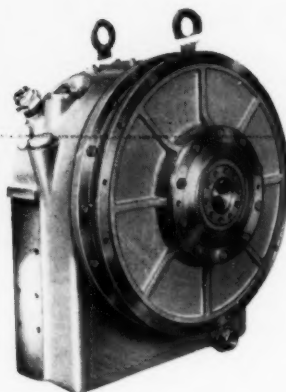
Stand No. A1

A conveyor circuit consisting of an Omniflex flat strip belt

conveyor, a Wair-type conveyor and a rubber-covered wire belt 90-deg corner conveyor will demonstrate this company's products. Also included in the circuit will be an Aircush Lowerator, which allows loads to drop perpendicularly between floors, using no power other than gravity.

The circuit will illustrate the ability of this equipment to handle a variety of boxes, cartons, tins, etc. along the straight, around corners, up inclines, and at differing floor level.

A separate exhibit will be that of the Wedco woven wire 'Flexiplane' belt, designed to carry bottles.



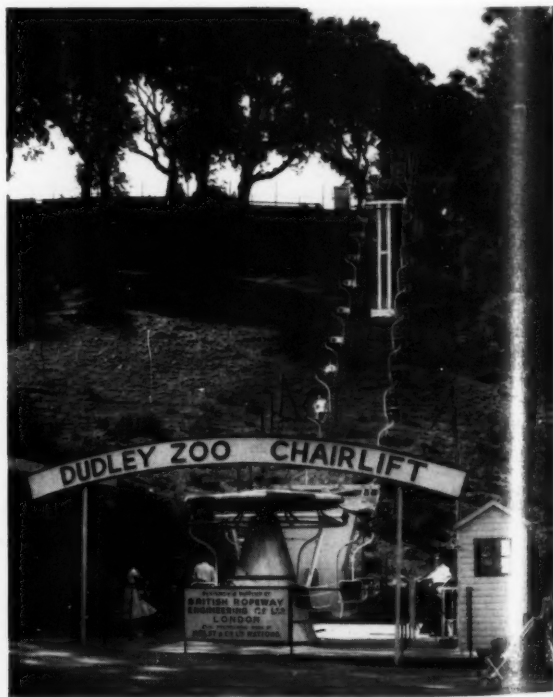
One of the range of torque converters manufactured by Brockhouse Engineering, Ltd., for industrial tractors, fork lift trucks, shunting locomotives and aircraft towing tractors

BROCKHOUSE ENGINEERING, LTD.

Stand No. GG18

On show for the first time will be a range of torque converters and power shift transmissions manufactured by this company, and suitable for industrial tractors, fork lift

A passenger chairlift installed at Dudley by British Ropeway Engineering Co., Ltd.





trucks, shunting locomotives, etc. The exhibit will also include industrial models for engines ranging from 25 h.p. to 1,250 h.p.

BROOKHIRST IGRANIC, LTD.

Stand No. GG9

One of a new range of disc brakes will be exhibited by this company. Produced for A.C. supply, these are designed for machine tool and small crane motors. They are arranged for flange mounting and their fixings and spigots conform to N.E.M.A. specification—by flange mounting they can be incorporated in, or adjacent to, the actual motor.

Restyled examples from their list of over 30 different types of lifting magnets will be on show, together with other examples from the Brookhirst Igranic product range of control and associated apparatus, including a recently designed crane panel and a crane operator's chair.

DAVID BROWN INDUSTRIES, LTD.

Stand No. H4

Featured on this stand are the David Brown industrial 950 tractor with front end loader, and the 50 PC tracklayer with front end shovel. Among the other equipment are Radicon worm reducers, Varigon stepless speed reducers,

Brush 10-ton tractor model RD1. (Brush Electrical Engineering Co., Ltd.)



BTR Nypac rubber-covered cotton/nylon conveyor belting, this 1,200 ft roll is part of 72,000 ft of 24-in wide 5-ply belting incorporating cotton/nylon fabric which has recently been supplied to Chile for an iron-ore conveyor installation. (BTR Industries, Ltd.)

(Above left) Crane operator's armchair control unit, incorporating master controllers, pushbuttons and pilot lamp. (Brookhirst Igranic Ltd.)

Helicon geared motor units, Keighley stock spur gears, cone-ring flexible couplings, steel and bronze castings. Gear cutting tools and patented floating reamers will also be shown.

BRUSH ELECTRICAL ENGINEERING CO., LTD.

Stand No. C3

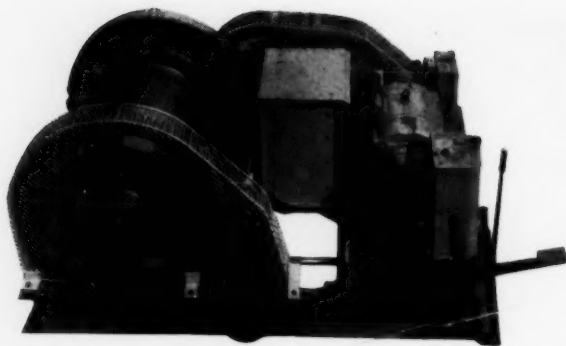
On this stand five types of Brush battery-operated trucks will be demonstrated. A low loader truck with elevating platform for 1 ton loads, flameproofed to B.S.S. 228. A special high loader truck with elevating platform for 2 ton loads, the platform being power-operated and providing two heights—2 ft high for travelling and 4 ft high for loading.

The tractors to be displayed are the front drive SD model, capable of pulling loads of 3 ton, the three-wheel-drive TD tractor for loads up to 6 ton and the rear-wheel-drive R.D.1 tractor for loads up to 10 ton.

BTR INDUSTRIES, LTD.

Stand No. GG10

Industrial hose with special emphasis on high pressure units suitable for use with hydraulically operated mechanical handling equipment will be a feature of this stand. Pipes and fittings in high impact PVC for the safe handling of corrosive fluids will also be demonstrated. The company's extensive range of surface and underground conveyor belting will be represented in a wide range of constructions, including 'Nypac,' a nylon-wetted belt. This belt is available in a range of widths and plies with alternative warp materials for particular duties.



Two-ton electric spur-gear winch. (Butters Bros. & Co., Ltd.)

W. E. BURNAND & SON, LTD.

Stand No. GG5

The exhibits on this stand will be representative of the manufacturer's range of lifting magnets and electromagnetic clutches, together with control gear and reeling drums.

A half-scale model of an electro magnetic lifting beam fitted with 12 x 14 in dia magnets and capable of handling plates up to 40 x 8 ft weighing up to 8½ ton will be on show, together with examples of magnetizing and demagnetizing equipment and electromagnetic chucks.

BUTTERS BROS. & CO., LTD.

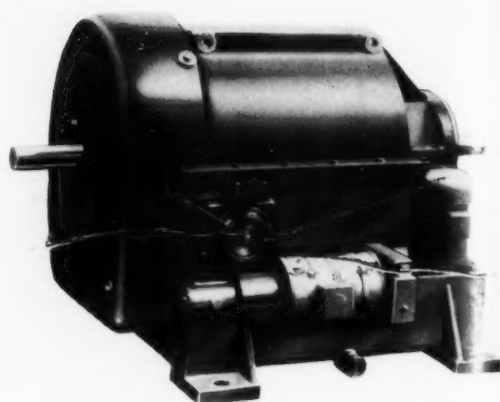
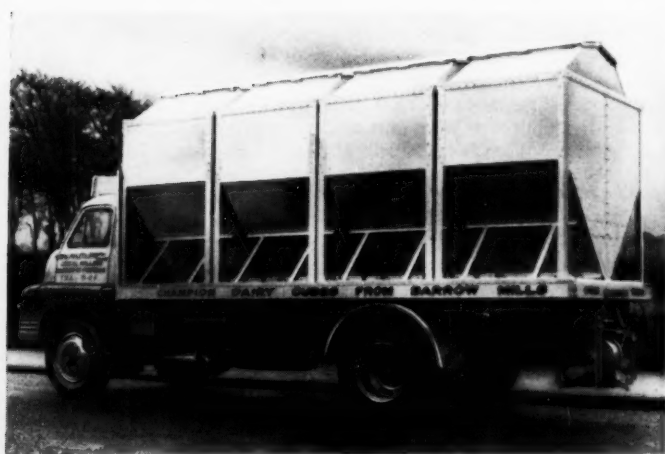
Stand No. J8

This company will be exhibiting a new 2-ton electric spur geared winch. Fitted with a 25-h.p. motor, giving a speed of 125 ft/min, the winch has a foot lever brake and also an auxiliary hand brake. The barrel is designed to accommodate 750 ft of rope and the overall dimensions of the machine are approximately 8 ft 4 in x 6 ft 7 in x 3 ft 5 in high. Scale models of the company's well-known range of cranes will also be on display.

F. E. CALLOW (ENGINEERS), LTD.

Stand No. CC6

A complete high-pressure pneumatic conveying installation will be shown on this stand. The installation will include a Rootes type blower and a 'Liverpool Callow' rotary blower valve, as well as a remote-controlled two-way valve for diverting material into either of two receiving hoppers. Gravity-fed material will be handled and blown into a



Carter size AL50 hydraulic variable speed gear fitted with remote electrical speed control. (Carter Gears, Ltd.)

4-in bore conveying line. A multi-way valve will also be shown, suitable for use on high-pressure pneumatic conveying systems where many pipelines are necessary. This can be used for handling grains, meals, plastics, ground limestone and cement, at rates of up to 30 ton/hr.

Other exhibits will include rotary valves in mild steel, aluminium and stainless steel, high efficiency exhausters fans, a ter Linden cyclone, a multicycle and a continuous blade screw conveyor, as well as a model of a provender mill, and a range of bulk delivery equipment for use with road vehicles.

CARGON TRANSPORT (GREAT BRITAIN), LTD.

Stand No. West Brompton Forecourt No. 7

The Cargon system will be exhibited on this stand. A 7-ton road vehicle with a Cargon superstructure, switching equipment and hydraulic jacking, will be shown, as well as the following: universal Cargons for 16 ft 6-in vehicles; Cargon containers of 3½ ton capacity; a Salmesbury/Cargon container of 670 cu. ft. capacity; and Cargon transfer decks.

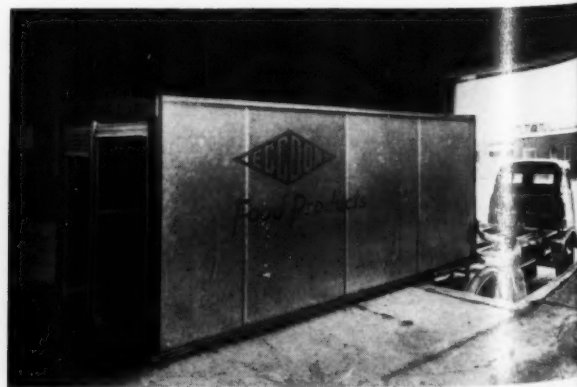
CARTER GEARS, LTD.

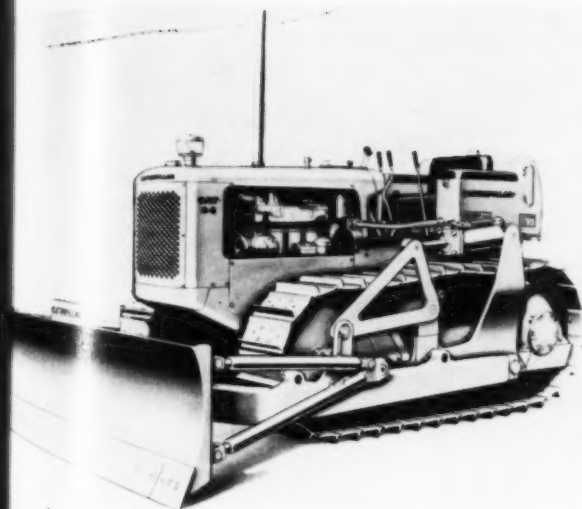
Stand No. NN6

Types 'A' and 'F' Carter hydraulic infinitely variable speed gears will be shown on this stand. These will be of various sizes and will be complete with standard speed controls.

(Left). Demountable container-type bulk lorry for pneumatic delivery of feeding stuffs, etc. (F. E. Callow (Engineers), Ltd.)

Cargon insulated food container of 500 cu. ft. capacity being transferred from vehicle to loading dock. (Cargon Transport (Great Britain), Ltd.)





Caterpillar D4 crawler tractor with bulldozer. (Caterpillar Tractor Co., Ltd.)

i.e. handwheels, remote electrical controls, drilled lever controls, and hydraulic relays. Working units on show will include Carter variable speed drives, complete with electric motors, variable speed gears, and in some cases reduction gears for slow speed drives.

Special interest is attached to an exhibit which will be shown for the first time—a continuously operating Carter variable speed drive. This unit will demonstrate the extremely wide speed range available with Carter gears. It will be driven through a constant speed input shaft to produce a continuous cycle of speed variation.

WILLIAM E. CARY, LTD.

Stand No. FF13

Horizontal and inclined belt conveyors will be shown on this stand, as well as a forged fork for fork lift truck use.

CATERPILLAR TRACTOR CO., LTD.

Stand Nos. F14 and G14

Two new Caterpillar No. 944 wheeled Traxcavators will be shown on this stand, one fitted with a standard 2 cu. yd. bucket, the other with a side-dump bucket. Also on show will be a new Caterpillar No. 955 track-type Traxcavator with a 1½ cu. yd. bucket, as well as two new Caterpillar D4 crawler tractors, one with a No. 4A bulldozer and the other with a Hyster winch and logging arch.

C.A.V., LTD.

Stand No. MM7

The C.A.V. paper element type fuel oil filter is one of a number of exhibits to be shown on this stand. Another is the 'Thermostat' starting aid for diesel engines. A range of diesel engine fuel injection equipment will be shown, including injection pumps, governors, nozzles, nozzle holders. Also on show will be electric engine starters, A.C. and D.C. generators, traction motors, motors for hydraulic pump drives, switches, relays and lead-acid and alkaline batteries.

P. C. & C. K. CHASE, LTD.

Stand No. M1

The 'first-in, first-out' type of stock control stacking will be demonstrated on this stand by means of a three-level stock

trolley display. Also on show will be a collapsible freight container, a stillage for metal strip in coil form, standard road transport stillages, and other general- and special-purpose handling devices.

CHARROLD, LTD.

Stand No. GG1

Charrold Autobagger and conveyor vehicles are designed to streamline bulk handling, transport and delivery of all kinds of materials: coal, coke, grain, cement, coffee beans and many other loads for bulk road haulage.

Charrold standard units on show will include, hoppers, Handiveyors, conveyors and paper bag fillers.

CHLORIDE BATTERIES, LTD.

Stand No. GG7

The new design Exide-Ironclad traction battery with 'Gauntlet' plate construction will be shown on this stand. This produces up to 35 per cent more power for the same space, with about the same weight factor. The performance too, is claimed to be levelier. The 'Gauntlets' are of resin-impregnated Terylene cloth and enable the electrolyte to penetrate to the active material more freely, shedding of active material being reduced to negligible proportions.

GEORGE COHEN SONS & CO., LTD.

Stand Nos. H9 and L5, and West Brompton forecourt No. 4

A Barnsley overhead crane crab on stand No. L5 will typify the range of Barnsley overhead cranes for which the exhibitors are agents. It will be of 20-ton capacity and fitted with a creep speed which operates on the first notch of the hoist control, operation being through a pony motor driving through an epicyclic gear. Another exhibit will be a 5-cwt overhead travelling crane with a castellated beam for the crane bridge, showing the weight-saving which is characteristic of this type of construction and is of special importance in large-span cranes. Lorry loaders will also be shown, a 2-ton HIAB machine fitted to a Commer cab with dummy chassis, and a 1-ton HIAB 'Bimbo' loader, a smaller version of the 2-ton machine.

Fork lift trucks are available on hire from the exhibitors and a typical example drawn from their hire fleet, will be on

Fixed post Road Transport-type mesh-sided stillage with one half-drop side, weight capacity 10 cwt, cubic capacity 34 cu. ft. A further 10 cwt of loose parcels can be placed on the lid. (P.C. & C.K. Chase, Ltd.)





The new Jones KL 10-10 Mark III 'Fast-Travel' mobile crane. (George Cohen Sons & Co., Ltd.)

show. Also on show will be a roller conveyor, typifying roller conveyor equipment available for all purposes.

A range of Jones mobile cranes will be shown on stand No. H9, including the model KL 12-20M, mounted on pneumatic-tyred restrictor wheels, with a 90-ft sectional jib. This machine has a maximum capacity of 20 tons at 10 ft radius, and 3½ tons at 22 ft. It has direct mechanical transmission and is driven by a Perkins diesel engine. All controls have power assistance. The other models on show will be the following: the KL 10-10 Mk III 'Fast-Travel' long wheelbase machine, which has 12½ tons capacity and can travel at 30 m.p.h.; the KL 10-6 rail crane of 10 tons capacity, and having a shunting capacity of 125 tons when equipped for shunting duties; the KL 66 mobile crane of 6 tons capacity at 10-ft jib radius; and the KL 33 mobile crane.

A number of Jones mobile cranes will be shown together with a 2-ton HIAB lorry loader at the West Brompton Forecourt.

J. COLLIS & SON, LTD.

Stand No. J6

An extensive conveyor installation will be seen at work on this stand. It will incorporate the RolaVeyor, the TransVeyor, the MotaVeyor and the Power-RolaVeyor. Also on show will be the SlatVeyor, the VertiVeyor, the Collis truck, and the Collis stacker, the latter being an electric hydraulic model.

COMPRESSED RUBBER PRODUCTS, LTD.

Stand No. JJ4

Cushion-tyred industrial wheels, hard moulded rubber wheels, and other types of industrial wheels will be shown on this stand. These will include heavy-duty wheels of various kinds. In addition trailer wheels of up to 20 in dia will be shown, as well as light, heavy and medium-duty castors, and rubber rollers of up to 10 ft in length and 14 in in dia.

CONVEYANCER FORK TRUCKS, LTD.

Stand No. J13, HH34 and West Brompton Forecourt No. 2 Of particular interest on this stand will be the TC 6 Series 5 newly styled diesel fork truck of 6,000 lb capacity; the E.M.I. Robotug platform tractor will also be exhibited together with a Conveyancer 1-ton low loader elevating

platform truck and E 15-20 battery/electric fork truck of 1,500 lb capacity.

The Shorland straddle carrier made by the Materials Handling Equipment Division of Short Brothers & Harland, Ltd., will be located in the outside demonstration area.

CONVEYORS (READY BUILT), LTD.

Stand No. F7

See Redler Conveyors, Ltd.

R. H. CORBETT & CO., LTD.

Stand No. K9

A range of Hycaddy stackers will be shown on this stand, with capacities from 500 lb to 1,500 lb, among them the Hycaddy high-lift stacker with 20 ft lift. Hydriver machines will be demonstrated with Hypal and semi-live stillages. Also on show will be Hydram clamps on fork lift trucks, with capacities of 2,000 lb, 4,000 lb and 6,000 lb. Portapal pallet trucks with Duthano tyres will be shown, as well as oil drum storage equipment including the LP lorry loader.

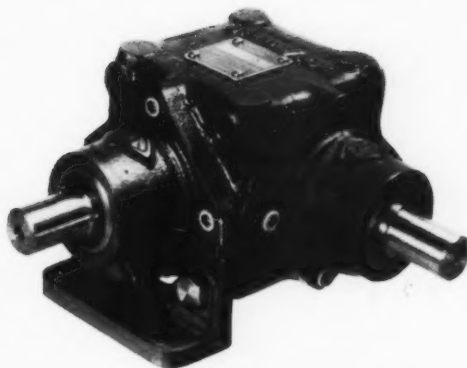
Shorland straddle carrier, Series 29, designed to handle railway containers in addition to the usual applications for straddle carriers. (Conveyancer Fork Trucks, Ltd.)





Air operated 'Hycaddy' stacker for use in inflammable goods stores. (R. H. Corbett & Co., Ltd.)

A Collis conveyor installation similar to that which will be seen at the exhibition. (J. Collis & Sons, Ltd.)



Size RA/1 mitre gearbox for 1-h.p. power transmission in complicated drives as in modern automation. (Cordey-Thomson)

CORDEY-THOMSON

Stand No. DD9

A new and simple flange-type cast iron ball and roller bearing housing will be shown on this stand, available in various sizes within the range $\frac{1}{2}$ to 2 in shaft dia. Any ball or roller bearing race can be used with this range of housing.

Also on show will be the 'Neeter' power transmission system, which is for enclosed drives and uses the Cordey-Thomson mitre and tee-drive gearboxes. These are made up of small rubber couplings connected to shafting and an outside tube or torque tube covers the couplings and the shafts. The tube is secured to the gearbox. Other exhibits will include a range of gears from 1 to 3 h.p. in capacity, and details of special-purpose machine design services.

ROBERT CORT & SON, LTD.

Stand No. E13

Resonance screens will be shown on this stand, including the following: the 20 x 6 ft Gun model, the 9 x 4 ft type FA,



(Left) Coventry Climax LGD Universal fork lift truck with triple-stage 20-ft lift mast. When closed, mast height is only 108 in and the free lift height is 82 in. (Coventry Climax Engines, Ltd.)



New four-wheeled Coventry UTF fork lift truck, with motion-studied controls and power-assisted steering. (Coventry Climax Engines, Ltd.)

and the 6 x 3 ft type FB. Also on show will be the automatic water strainer, and fabricated steel through conduit pipeline gate valves.

COVENTRY CLIMAX ENGINES, LTD.

Stand No. F11

Sixteen machines on this stand will typify the complete range of Coventry Climax fork lift truck equipment. These machines will feature the following: the roller-type masts, which have reduced overlap and give a greater lift height without increasing the collapsed height; the 20-ft lift triple mast, one of a series having very low collapsed heights; 'Universal' electric and mechanical trucks of 2,000 to 5,000 lb lift capacity; new four-wheel electric and diesel trucks of 5,000 to 7,000 lb lift capacity; a range of fork lift truck attachments, including plate-type side-shifts, showing the versatility and high carrying capacity of the entire range; and well-known machines such as the TMD 1-ton diesel truck, the UTF4 2- to 3-ton diesel truck, and the JFTT 'Spacemaster' truck.

C.P.C. (SOUTHAMPTON), LTD.

Stand No. E9

An interesting type of loading bagging hopper will be shown on this stand. It will be of welded steel construction, of 10 tons load capacity, 13 ft in height and 10 ft square, with an adjustable chute for filling bags of different capacities. The chute has a loose bottom plate which is quickly removed to allow insertion of a screen plate. The hopper is a self-contained packaged unit. No installation is required and operation is by one man only.

CROFTS (ENGINEERS), LTD.

Stand No. HH12

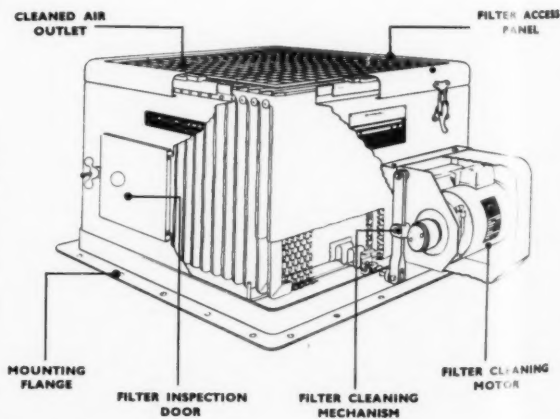
A representative selection of power transmission equipment will be shown on this stand, including industrial clutches and brakes, flexible couplings, hydraulic couplings and drives,

conveyor pulleys and drives, geared motors and reduction gears, machine cut gears, V-rope drives, PowerGrip drives, and variable speed drives.

CRONE & TAYLOR (ENGINEERING), LTD.

Stand No. D5

A comprehensive range of Crone & Taylor mechanical handling equipment will be shown on this stand. This will include suspended and mobile-type Meteor throwers, a mobile screening unit, a scale working model of a bulk cargo loader with thrower, typical bulk and bag conveyor sections, a coal bagging chute and a new coal bagging unit for paper sacks.



'Unimaster' venting dust control unit. (Dallow Lambert & Co., Ltd.)

CUTLER CONVEYOR CO.

Stand No. EE2

A special type tilt-pan chain conveyor combined with a slatted belt conveyor, will be shown on this stand. Also on view will be oscillating conveyors and screens.

DALLOW LAMBERT & CO., LTD.

Stand No. JJ8

A complete range of the new Dallow Lambert 'Unimaster' range of dust control units will be shown for the first time on this stand. The 'Unimaster' is a self-contained dust collector and is particularly versatile and is suitable for handling a wide range of dust-laden airflows. Also on show will be a 'Unimaster' venting dust control unit, which is suitable for use as a filter for dealing with dust problems associated with pneumatic conveying systems.

DARGUE BROTHERS, LTD.

Stand No. FF15

Drafting machines and drawing tables will be shown on this stand. One of these will be the hydraulic '3D' Hydrolift drafting stand, which allows the drawing board to be moved in three planes by means of pedal controls and a central lever. Also on show for the first time will be a combined technical school desk and writing desk, which can be converted into a vertically mounted drawing board in about 10 sec. Another new development on show will be filing cabinet for vertically hung drawings.

SAMUEL DENISON & SON, LTD.

Stand No. KK12

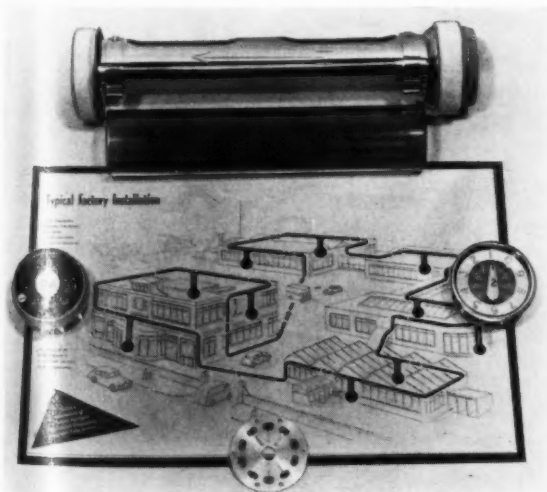
The Blake-Denison automatic totalizing weight for belt conveyors, will be shown on this stand.

DEXION, LTD.

Stand No. HH10

The Dexion glidewheel gravity roller conveyor will be shown on this stand. This is built up of Dexion angle and Dexion glidewheels, together with curved sections made up of Dexion punched steel strap. Open-type flooring panels of steel will also be shown. These are for horizontal load-bearing members and ramp surfaces.

Fundamental parts of a Dialled Despatch system, showing single and multi-tone acoustic heads, acoustic reed plate and a typical carrier. A typical system is shown in the background. (Dialled Despatches, Ltd.)



Dexion glidewheel roller conveyor. (Dexion, Ltd.)

DIAC, LTD.

Stand No. H14

A comprehensive range of handling equipment will be shown on this stand, including the following: fork lift trucks, stackers, hand pallet trucks, stillage trucks, lifting tables, trailers, floor trucks, steel and timber pallets, stillages, tote boxes, racks, control panels, and certain types of special equipment.

DIALLED DESPATCHES, LTD.

Stand No. G13A

A fully selective ring main pneumatic carrier tube system will be demonstrated on this stand. This is electronically controlled and acoustically directed. It is claimed to be free of condensation as well as freezing and cross-infection. The system on show will be a three-station working model with 3-in dia tubes.

DIDSBURY ENGINEERING CO., LTD.

Stand No. G1

A new range of manually propelled and operated Minilift trucks of 5 cwt and 10 cwt capacities, will be shown. These can be converted, within 1 min, from fork lift trucks to jib cranes and each is available with forward or reverse base. Minilift ultra-lightweight hoists and overhead trolleys will also be on show.

DOITY CRANES, LTD.

Stand No. E7B

Packaged crane kits will be shown. These enable purchasers to use their own steel structure to build medium capacity overhead cranes. The kits are complete with switchgear, motor, gearbox, axles and bearings.

DOUGLAS EQUIPMENT, LTD.

Stand Nos. N4 and N5

Showing on this stand will be a four-wheel drive dumper, mobile crane, industrial tractor and a loading shovel.

DOWTY HYDRAULIC UNITS, LTD.

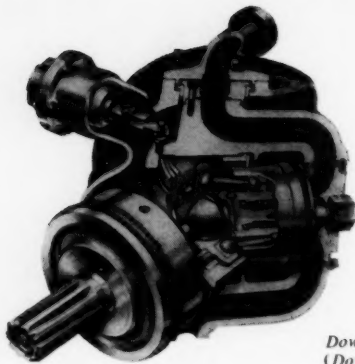
Stand No. GG12

DOWTY SEALS, LTD.

Stand No. KK2

The Dowty hydraulic units stand will feature the Dowty drive, a hydrostatic transmission suitable for heavy-duty agricultural and industrial vehicles, as well as a selection of hydraulic units, and gear motor and control valves for fork lift truck use.

The Dowty Seals stand will show a representative selection of seals, including Topats and Spats, as used in roof sheet fixing and sealing operations on industrial buildings.



*Dowmatic hydraulic drive unit.
(Dowty Hydraulic Units, Ltd.)*

THE D.P. BATTERY CO., LTD.

Stand No. EE7

The recently introduced high performance 'N' range of D.P. Kathode cells will be shown on this stand. This includes cells specially designed for the operation of mechanical handling equipment.

DRAG SCRAPER & CONVEYOR CO., LTD.

Stand No. G2

Drag Scraper and Conveyor equipment will be described and illustrated on this show, by means of typical action photographs and descriptive matter.

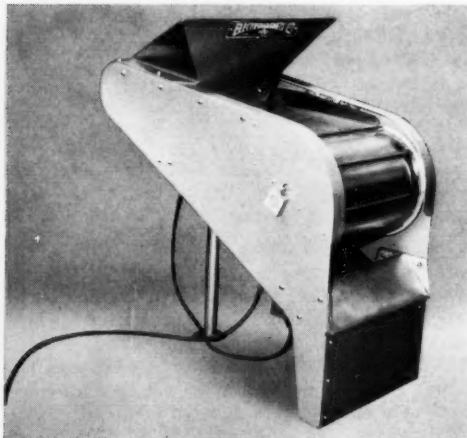
DUNLOP RUBBER CO., LTD.

Stand No. JJ5

Examples of the large range of Dunlop conveyor belting will be shown on this stand, special emphasis being given to the use of butyl and neoprene synthetics in carcass and Nylon and Terylene in the duck. Samples of the new Dunlop Star range of conveyor belts will also be shown and specialized items such as white food belting.

(Right) 5-cwt non-straddle 63-in battery stacker. (Eccles (Birmingham), Ltd.)

(Below) Newly designed superflux magnetic drum separator which embodies a magnetic drum fitted with alcomax permanent magnetic alloy units and is fed with a vibratory feed tray fitted with a rotary-type vibrator. (Electromagnets, Ltd.)



ECCLES (BIRMINGHAM), LTD.

Stand No. B4

On this stand will be shown a range of lifting and pallet trucks with load capacities from 10 cwt to 5 ton; twin fork pallet trucks with capacities of 20, 30 and 40 cwt; standard four-wheeled trailers with capacities up to 40 cwt; a number of stackers—single mast and telescopic types—with capacities from 5 to 20 cwt which are either hand-pump or mains or battery pump operated and a selection of stillages and pallets.

ELECTRO-HYDRAULICS, LTD.

Stand No. HH25

Examples of this company's hydraulic equipment are demonstrated in a self-advancing powered support system for coal face roof support. The setting and withdrawal of supports, the advancing mechanism for supports and conveyor and the telescopic roof bars and steering arrangement are all hydraulically operated.

Also exhibited is the company's multi-wheel bogie undercarriage—built for the Handley Page 'Victor' bomber.

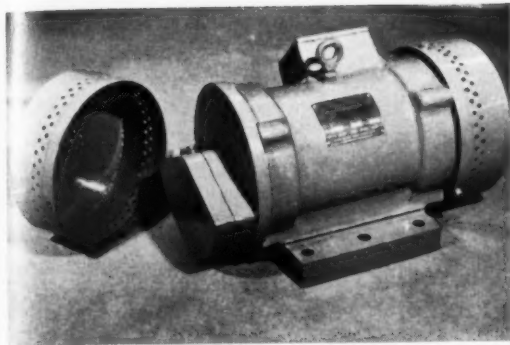
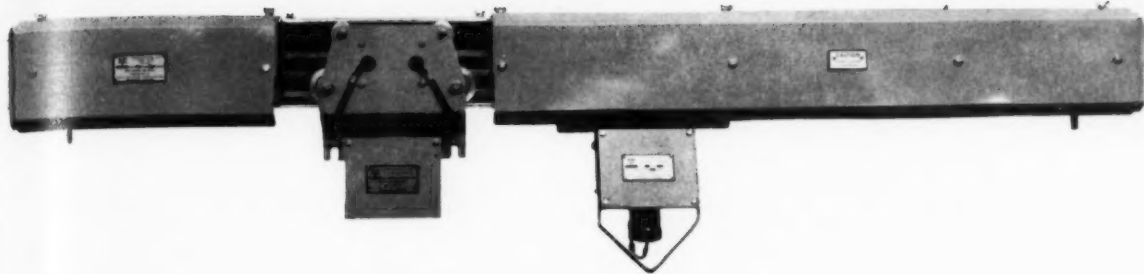
An industrial application of an hydraulic system is demonstrated on a reach truck on the stand together with a selection of valves and solenoids.

ELECTROMAGNETS, LTD.

Stand No. NN3

This firm of electro-magnet specialists will have a number of demonstration exhibits. One will comprise an automatically controlled lifting magnet handling steel plates in conjunction with the patented 'Select-O-Load' variable capacity control gear. Another exhibit will consist of an inclined conveyor embodying a patent magnetic conveyor head unit, over which will be mounted a high-intensity overband-type magnetic separator, the drive to the conveyor being transmitted through a magnetic clutch. Foundry sand reclamation and a variety of other magnetic equipment will also be on view.





Industrial Machines Division will be showing a range of new electric motors specially designed for vibrating drives, vibration being generated by out-of-balance weights at either end of the motors, and other types of motors including a new totally enclosed fan-cooled squirrel cage motor which is smaller, lighter and cheaper than previous models of its type. The F.H.P. Division will have on view a selection from their wide range and the Aircraft Equipment Division will show a number of actuators.

EPCO. LTD.
Stand No. LL7

This company is showing a range of hydraulic maintenance equipment and aids to industry. Of particular interest are

(Top) Trolley-master guarded conductor system. (E.M.S. Electrical Products, Ltd.)

(Above Centre) English Electric and the Grantham Electrical Engineering Co., Ltd., have designed this new motor specially for vibrating drives. The completely self-contained unit eliminates the mechanical parts associated with an eccentric shaft arrangement. (The English Electric Co., Ltd.)

(Left) Two and three speed hand lever change ratio geared motors, Slo-Rev type, ESR.3/V.1, fitted with 2 h.p. Crompton Parkinson motors, used for batch mixing cement aggregates. (Electropower Gears, Ltd.)

Large-capacity bucket in use on a castings cooling mono-rail conveyor in a mechanized foundry. (Ewart Chainbelt Co., Ltd.)



ELECTROPOWER GEARS, LTD.
Stand No. HH32

Electropower gears shown on this stand will include two and three speed hand lever change ratio geared motors of the 'Slo-Rev' type. Two types of variable speed gear drives using the Pye variable speed coupling and Electropower electro-magnetic drives will be demonstrated, and a selection of geared motors, speed reducers, and electro-magnetic brakes will also be on view.

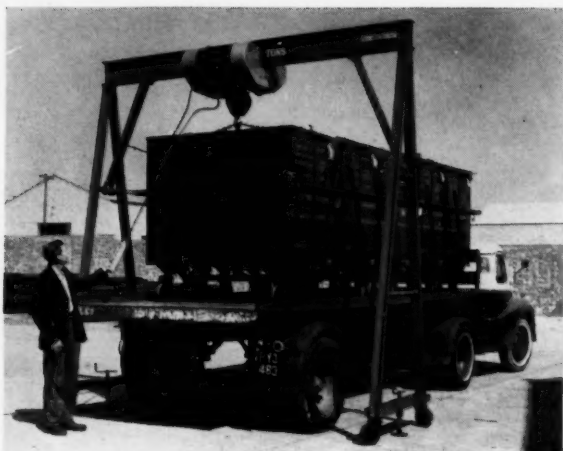
E.M.S. ELECTRICAL PRODUCTS, LTD.
Stand No. MM4

On this stand will be shown guarded power tracks for cranes and hoists, including the 2-phase 'Trolley-master' and the single-phase 'Trolleyduct'; multi-bar guarded power tracks for crane cross span protection; guarded power tracks for Hi-cycle tools and assembly lines and in conjunction with conveyor systems; electrical power transmission equipment, and control panels built to customers' specialized requirements.

THE ENGLISH ELECTRIC CO., LTD.
Stand No. HH28

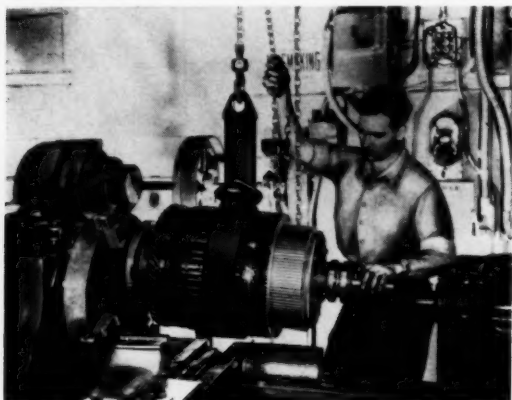
The Industrial Machines, F.H.P., and Aircraft Equipment Divisions of English Electric will be exhibiting. The





2-ton electric wire rope pulley block. (Felco Hoists, Ltd.)

Neoprene-covered light-duty sling lifting a heavy armature into position on a centre lathe. (Felco Hoists, Ltd.)



the hydraulic gear pullers with rams from 2 to 100 tons capacity. Also shown are high- and low-pressure manual hydraulic pumps, motor-driven high-pressure hydraulic pumps, a 60-ton hydraulic press with motor-driven pump and tackle adjustment and three models of hydraulic workshop floor cranes.

EWART CHAINBELT CO., LTD.

Stand No. B3

These well-known driving chain specialists will be showing a wide range of malleable iron and all-steel conveying and transmission chains, buckets and sprockets. A full-size working model of a monorail conveyor and bulk handling plant will be demonstrated. This model comprises vertical, spiral and drag link conveyors and a spiral feeder. There will also be a small-scale model of package-handling plant and oscillating conveyor.

F'AG BEARING CO., LTD.

Stand No. EE12

The F'ag exhibit will include ball bearings, cylindrical and roller bearings, taper roller and spherical roller bearings, plummer blocks, pillow blocks, flange units, axle boxes and the new 'Lu'riseal' range of plummer blocks and flange units. F'ag bearings are manufactured by the founders of the ball and roller bearing industry in Europe.

GORDON FELBER & CO., LTD.

Stand No. DD7

On this stand the 'Mayrath' auger conveyors are displayed.

FELCO HOISTS, LTD.

Stand No. M2

A comprehensive display of hand and electrically operated hoist equipment will be seen on this stand. Included in the former will be 'Goliath' universal twin-cam positive lifting clamps, girder clamps, travelling chain blocks and overhead travelling trolleys, 'Adjust-A-Leg' equalizing slings, hydraulic jacks and hoist and runway erections. In the latter group the 'Hydroist', an electro-hydraulic hoist, a range of electric wire rope pulley blocks, electric chain blocks, and a 3-ton capacity electric winch will be prominent.

FINSPA ENGINEERING CO., LTD.

Stand No. LL12

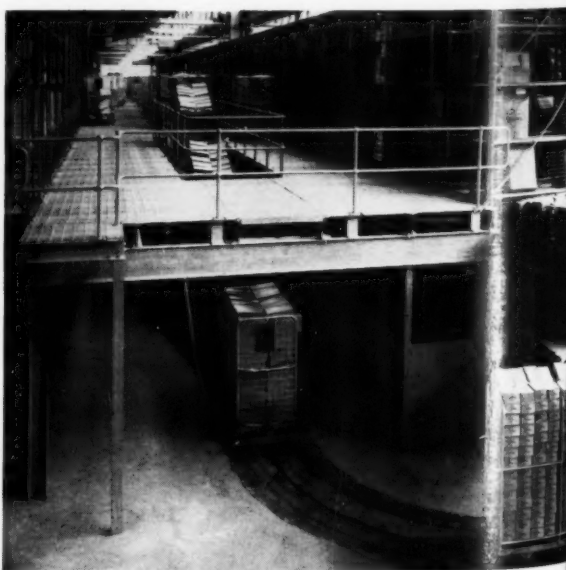
An interesting feature of this stand will be the 'Griplok' unit-construction platform which is made up of a small number of prefabricated components. The design of these components allows easy and speedy erection and dismantling. Other specialities which this concern will show in conjunction with their associate, The Page Industrial Equipment Co. Ltd., are 'Griplok' adjustable pallet racking, 'Gripklamp' tubular structures, 'Multibin' storage rack and steel flooring.

FISHER & LUDLOW, LTD.

Stand No. H8

On the Fisholow stand a team of production and material-handling engineers, well qualified to offer on-the-spot suggestions for tackling individual handling problems, will be in attendance. Fisholow products which together make up the integrated handling and storage systems will be illustrated in photographic or model form. These include: the 'Flowmaster' electronically controlled system, the 'Flowlink' chain conveyor system, 'Flowline' belt conveyors, the 'Fisholow-Hapman' tubular conveyor system, 'Flowline' portable conveyors and the 'Flowporter' powered gravity conveyor systems. There will also be an exhibit of pallets of many types, the various Fisholow factory equipment will be on view, and the Cargon freight-handling system will be demonstrated.

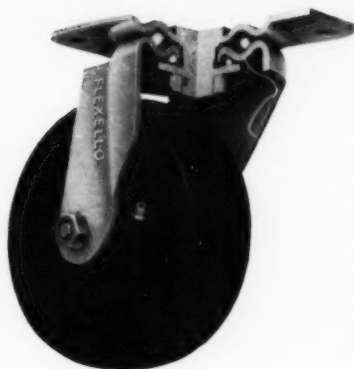
The Fisholow products which can be seen in this photograph taken in a shoe warehouse are as follows: 458 floor conveyors, shelving, partitions, handrailing and standards, steelwork and Flowforge open steel flooring. (Fisher & Ludlow, Ltd.)



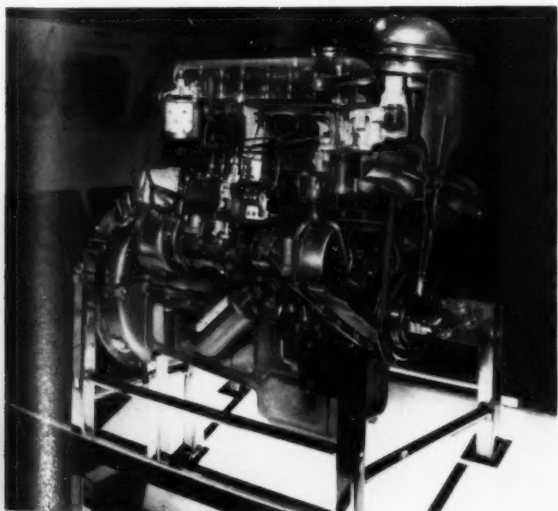


'44' Series. Double ball bearing heavy/medium duty castors. (Flexello Castors & Wheels, Ltd.)

(Below) Floataire 1H tractor has an overall length of 57 in, an overall width of 32 in and a drawbar pull of 450 lb. Control is by orthodox foot pedals and steering wheel. (Floataire Ltd.)



(Below) A part-sectioned 4-cylinder diesel engine developing 57 b.h.p. at 2,250 r.p.m. (B.S. rating). (Ford Motor Co., Ltd.)



(Right) One of the drive units of the conveyor system at the N'Changa open cast pit in Northern Rhodesia. Each conveyor has three drive units with Vulcan-Sinclair scoop-control fluid couplings, with acceleration torque limiting control, the motor powers ranging from 130 h.p. to 250 h.p. (Fluidrive Engineering Co., Ltd.)

FLEXELLO CASTORS & WHEELS, LTD.

Stand No. GG16

Flexello are once again exhibiting their very large range of

'Constant Quality' engineered castors for industrial, institutional and domestic purposes. The newest Flexello developments on view include a series of double ball-bearing swivel and stationary castors for heavy/medium duty and a range of rubber-sprung floating castors for medium duty.

FLOATAIRE, LTD.

Stand No. N3

Four useful industrial power trucks will be demonstrated on this stand. They are the 15-cwt petrol power truck, the 5-ton hauling capacity petrol power tug, a similar capacity electric tug, and the 1-ton electric pallet transporter. A range of special grade p.v.c. tubing and fittings for lubricating purposes will also be shown.

FLUIDRIVE ENGINEERING CO., LTD.

Stand No. HH11

Vulcan-Sinclair fluid couplings drive a wide range of mechanical handling plant, from size 6 traction-type couplings used for small conveyors of fractional horsepower to size 46 scoop-type couplings driving pneumatic grain unloaders and flywheel generator sets of 2,600 h.p. for mine winders. The range of standard runners, from size 6 to 46, will be exhibited. Sectional models of the four main types of fluid coupling mainly used in mechanical handling plant will be shown, namely the standard traction coupling, the step-circuit coupling, the Fluidrive Pulley and the scoop-control coupling.

FORD MOTOR CO., LTD.

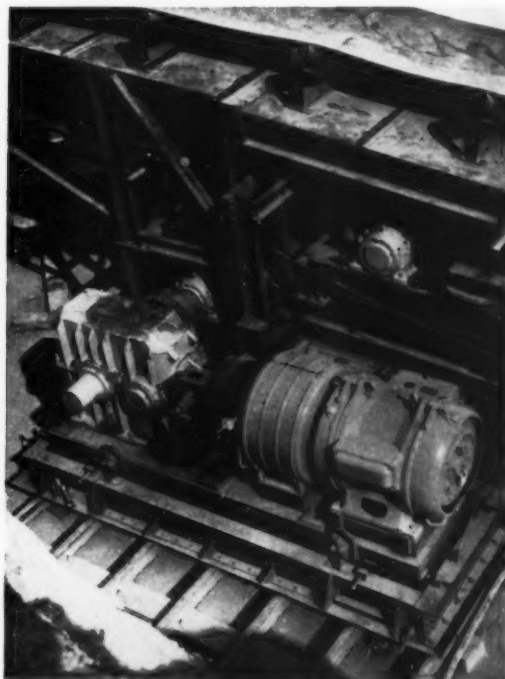
Stand No. JJ10

Ford industrial engines displayed on this stand range from the 3-cylinder diesel developing 28.2 b.h.p. at 2,000 r.p.m. to the 6-cylinder diesel developing 86.5 b.h.p. at 2,250 r.p.m.; and the 4-cylinder petrol unit giving 23 b.h.p. at 3,000 r.p.m. to the 6-cylinder petrol unit giving 58 b.h.p. at 3,000 r.p.m.

FORD MOTOR CO., LTD., TRACTOR DIVISION

Stand No. J9

Here will be seen the universally known Fordson Power Major equipment units with 4-cylinder diesel engines





Storage platform of Kee Klamp construction with welded tubular beams. (Geo. H. Gascoigne Co., Ltd.)



Fourways 30-ft portable horizontal conveyor feeding to an SS20 conveyor (Fourways (Engineers), Ltd.)

developing 51.8 h.p. at 1,600 r.p.m. These are available in more than 120 variations of build and in any combination of these assemblies and sub-assemblies.

FOURWAYS (ENGINEERS), LTD.

Stand No. G8

The centrepiece of this stand will be the recently developed 'Fourways' lorry loader. This new conveyor, with its extreme manoeuvrability, enables a quick turn-round of vehicles to be made. There will also be a representative selection of the well-established single and twin boom 'Fourways' conveyors, the smallest serving a height of 8 ft, the largest to a maximum height of 30 ft, and a small fixed conveyor.

C. J. R. FYSON & SON, ENGINEERS

Stand No. M5

This company are exhibiting their 'TE' portable belt conveyor of 40 ft centres fitted with hopper for receiving bulk materials from end tipping vehicles and capable of stacking or loading to a height of 17 ft; a section of their fixed belt conveyor designed for spans up to 60 ft., and a 'SL' portable slat conveyor.

GANDY, LTD.

Stand No. EE8

Among many different forms of belting will be seen the 'Sidewall'; 'Polywocotring' a white non-toxic food quality plastic belt; 'Proudrib' a cotton belt with longitudinal ribs of heat resistant Terylene and the 'Crossrib' cotton with a rough surface.

In addition to belting, Gandy, Ltd., will show a range of friction materials for brake and clutch linings.

GARDINER'S CONVEYORS, LTD.

Stand No. H15

Handling equipment that will be seen in this stand includes bulk storage hoppers with patent en masse horizontal conveyors and vertical elevator; a portable chain and slat conveyor of improved design; flat belt table-type belt conveyors; a pedestrian-operated traction unit; hydraulic

'Summit' telescopic hydraulic man-lift, 7 cwt capacity, 12 ft extension to top of platform, mains or battery operated. (Gardiner's Conveyors), Ltd.



Cutaway view of the Godfrey industrial blower model K200. (Sir George Godfrey & Partners (Industrial), Ltd.)

fork lift loaders and stackers and twin-belt high-speed can elevators.

GEO. H. GASCOIGNE CO., LTD.

Stand No. C2

Here will be seen many forms of storage equipment and storage racking and a new system of conveyor racking.

GEEST INDUSTRIES, LTD.

Stand No. A3

On this stand a comprehensive selection of hand trucks and trolleys covering a wide range of uses in almost every trade and industry will be seen. There will also be shown the company's battery-operated pedestrian-controlled platform truck incorporating the revolutionary 'Geest-Tramatic' drive, and a number of small motor tugs, platform and tipper trucks and trailers.

GIMSON & CO. (LEICESTER), LTD.

Stand No. C4

This company intend to show a fully automatic pallet loading machine.

GLENALDIE WOODWORKING & ENG. CO., LTD.

Stand No. NN2

A wide and interesting range of hand trolleys and trucks suitable for many industries and trades can be inspected on this stand.

J. GLOVER & SONS, LTD.

Stand No. EE1

The 'Ingold-Compactus' electrically operated storage equipment will be shown on this stand. This equipment, it is claimed, doubles storage capacity and all goods stored remain easily accessible. The exhibit will demonstrate how the storage of pallet racks can be increased and gangway space reduced to the minimum.

SIR GEORGE GODFREY & PARTNERS (INDUSTRIAL), LTD.

Stand No. LL16

The Godfrey industrial blower will be seen on this stand. This positive displacement Rootes-type blower is especially suitable for pneumatic conveying systems; the 'oil free' feature is particularly desirable in systems handling food products. Performance varies throughout the range: maximum air flow is approx. 3,000 c.f.m., the maximum pressure 15 p.s.i.

The Gramac 6-cw: mobile conveyor gives tailboard unloading height irrespective of delivery point. (Grading Machinery, Ltd.)



Goodyear HDNF (heavy-duty nylon fill) conveyor belting is built to take the strain of bigger payloads and contains nylon in the web construction. (The Goodyear Tyre & Rubber Co. (Great Britain), Ltd.)

Full automatic Telex services will be provided for visitors and exhibitors on the G.P.O. stand. This picture shows a Telex subscriber's operator dialling the number of a distant subscriber. On the new automatic Telex system this call will be connected instantaneously and without the intervention of an exchange operator. (G.P.O. London Telecommunications Region)



THE GOODYEAR TYRE & RUBBER CO. (GT. BRITAIN), LTD.

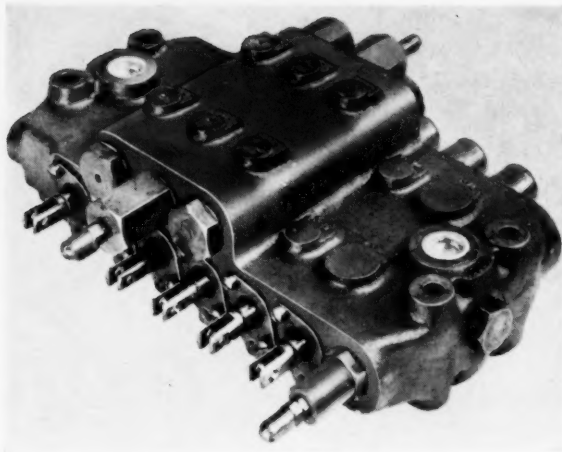
Stand No. GG8

Goodyear industrial products are to be seen on this stand. These include a wide range of conveyor belting, Armadillo chute lining, a selection of industrial hoses, a special display of oil suction and discharge hoses, an exhibit of V-belts and transmission belting including Goodyear Endless Cord belts, and marine and industrial fenders.

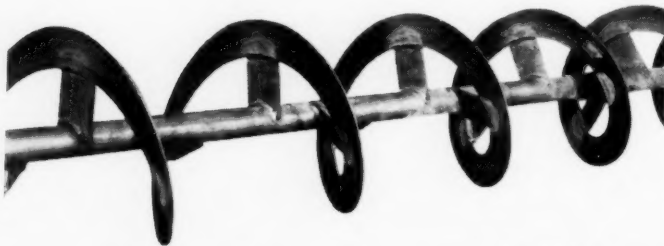
G.P.O. LONDON TELECOMMUNICATIONS REGION

Stand Adjoining Exhibition Lounge Area—First Floor

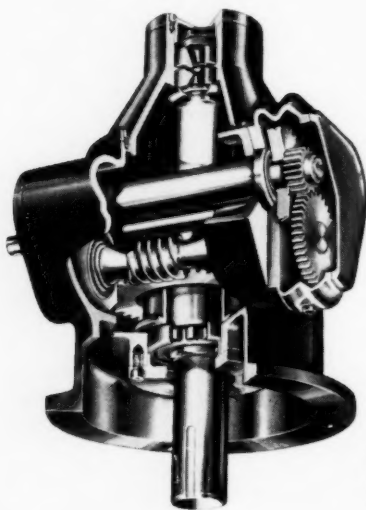
Full automatic Telex services will be provided for visitors and exhibitors. Automatic Telex is now available in Scotland, north-west and north-east England, the Midlands and the West Country. By 1961 it is hoped that all U.K. Telex subscribers will be able to complete their calls without the assistance of the operator. Eventually it will be possible to dial direct to some Continental countries.



Hamworthy type BVZ 606 six-plunger hydraulic control valve. (Hamworthy Engineering, Ltd.)



Portion of a 14-in diameter ribbon screw conveyor with the flight manufactured in one piece by a continuous rolling process. (Helicoid Flight Conveyors, Ltd.)



Part-sectioned view of the Highfield mixer drive. (Highfield Gear & Engineering Co., Ltd.)

GRADING MACHINERY, LTD.

Stand No. EE4

The interesting equipment on this stand will include a 6-cwt capacity double-lift hydraulic elevator, the boom of which can be raised almost to the vertical and depressed to below ground level. Boom lengths are 16 ft, 18 ft, and 20 ft. There will also be on view a barrel inverter which automatically lifts and pours or tips 40 gal. (or longer) drums,

a 10-cwt pedestrian-controlled battery-operated straddle truck and a 5-cwt stacker of 5 to 6 ft lift.

GRAFTON CRANES, LTD.

Stand No. G13B

This exhibit will include a diesel powered mechanical rail-shunting jib crane, a diesel conversion power unit with air-cooled engine and an electric conversion power unit.

GUEST KEEN & NETTLEFOLDS (MIDLANDS), LTD. & ASSOCIATE COMPANIES

Stand No. JJ9

G.K.N. and associated companies will have on view a comprehensive selection of screw fastenings from their immense range. Prominent in this selection will be self-tapping screws, Lester anti-vibration nuts, Wedglok self-locking nuts and screws, high strength friction grip bolts and special forgings. Part of the exhibit will be devoted to the electro-plating service of the Ionic Plating Co., Ltd.

HAMWORTHY ENGINEERING, LTD.

Stand No. GG4

These exhibitors will be showing a full range of their hydraulic pumps, motors and valves for application to earth-moving and other mechanical handling appliances.

HELICOID FLIGHT CONVEYORS, LTD.

Stand No. HH13

Working exhibits can be seen on this stand, showing the use of continuous helicoid flights in 'U' trough and portable screw conveyors. Also a variety of flights showing the many diameters and pitches it is possible to produce in a continuous form without any joints will be displayed.

HIGHFIELD GEAR & ENGINEERING CO., LTD.

Stand No. DD11

Amongst the exhibits on this stand will be a Highfield mixer drive, together with sectionalized models, and various types of worm reduction gear units.

HOLLAND CRANES

Stand No. D2a

Models will be exhibited of a floating pneumatic grain elevator, diesel electric powered and with a capacity of 400 tons/hr; a heavy lifting crane and a quay crane of the 3-ton 'Leptoptilus' type.

Photographs of the 'Seashell' mobile oil drilling platform, cranes, dredgers, grab dredging cranes, mechanical jigs and screens will also be exhibited.

JOHN HOLROYD & CO., LTD.

Stand No. KK15

These exhibitors will be showing several examples from their standard range of 'H'-type worm reduction units, underdriven, overdriven, vertical and double reduction types, and worm gear units to B.S.S. 3027/1958.

A range of 'F'-type worm reduction units made in three sizes, 1½, 1¾ and 2½ in centres; also 2¼-in Verso reduction unit, and Verso motorized worm gear units.

Examples of worm gears, spurs, helical and double helical gears, also screws and nuts.

Wormwheel blanks in Super Holfos (Regd.) centrifugally cast phosphor bronze and tubes for bushes and bearings, etc., made in Holfos Spuncast (Regd.) phosphor bronze, silicon bronze and leaded bronze, together with finish machined components.

Continuous cast solid and cored bars in Holfos (Regd.) bronze.

G. HUNTER (LONDON), LTD.

Stand No. J11

Fork lift trucks, hand pallet trucks and stackers will be amongst the exhibits on this stand. Of particular interest will be the elevating truck to be shown with rotating platform and side shift; tables interchangeable to adapt the truck for many different uses. Dock levellers will also be shown.

HYDRAULICS & PNEUMATICS, LTD.

Stand No. GG11A

These manufacturers will be exhibiting a substantial range of hydraulic and pneumatic equipment. The components on show will include a representative selection of valves, cylinders, pumps, etc., which lend themselves to designing into powered mechanical handling equipment. Amongst this range will be a novel servo actuator of simple design for use on positional control applications. The equipment has been adopted by many reputable manufacturers for packaging, machine tool automation, controlled raising, lowering, pushing, pulling, and even the operation of ash and coke hopper doors.

INDUSTRIAL & COMMERCIAL FINANCE CORPORATION, LTD.

Stand No. KK3

This stand will be an information bureau to explain the services Industrial & Commercial Finance Corporation, Ltd., offers to industry. The corporation provides finance for industry—in the form of long-period loans on fixed terms and share capital—for growing and progressive companies. Re-equipment can be a vital factor in promoting efficiency, and expansion is necessary to progress; the corporation's officers are ready to answer enquiries and give advice on financial problems.



The new 'Brimpex' auto-valve lifter gives fully automatic lifting, semi-automatic lifting or complete and sensitive hand valve control. (Industrial Machine & Equipment Co. (Brimpex), Ltd.)



Hunter patent counterbalanced dock leveller automatically adjusts the height of the dock to the tailboard of the lorry. Needs no power, no working parts to go wrong. (G. Hunter (London), Ltd.)

Hydraulic and pneumatic actuators made by Hydraulics & Pneumatics, Ltd.



Information will also be available about Estate Duties Investment Trust, Ltd.—EDITH—an associated company, which purchases and holds minority shareholdings in companies where shareholders or executors have to make provision for estate duty and do not wish to lose control.

INDUSTRIAL MACHINE & EQUIPMENT CO. (BRIMPEX), LTD.

Stand No. J3

A wide range of Brimpex self-actuating lifters and stackers will be shown on this stand, including the Brimpex self-actuating barrel lifter, a fully automatic machine which allows one man, unaided, to load 40/50-gallon drums straight through without uprighting them. Used for lorry loading and as fixed installations in factories, refineries and filling plants.

THE INSTITUTE OF MATERIALS HANDLING Warwick Road Entrance

This stand will be a temporary office and a meeting place for members. Literature will also be available for those who might be interested in joining the Institute.

INTERNATIONAL COMBUSTION PRODUCTS, LTD. RILEY (IC) PRODUCTS, LTD.

Stand No. H13

Exhibits on this stand embrace screens, belt conveyors, gravity bucket conveyors, the VacSeal pump and a barge unloader model. Riley (IC) Products, Ltd., which is part of the I.C. Group, is exhibiting on this stand a range of Sintron electric vibratory equipment.



Pedestrian-controlled Powrworker pallet truck. (I.T.D., Ltd.)



Powrworker stacking truck, pedestrian controlled. (I.T.D., Ltd.)

E. G. IRWIN & PARTNERS, LTD.

Stand No. CC2

This company, design and development engineers, will display a series of photographs of some of the projects with which they have been associated. Illustrations will also be shown of their large engineering design and drawing offices.

I.T.D., LTD.

Stand No. J12

On this stand will be a full range of Stacatruc fork lift trucks ranging from 1,500 lb to 7,000 lb capacity. Amongst the exhibits will be battery-electric trucks, pedestrian controlled and driver operated, and a diesel-powered truck. Platform trucks and pallet trucks will also be on view.

JEWSBURY'S MECHANICAL HANDLING, LTD.

Stand No. N1

A range of the 'Ameise Retrak' fork lift trucks, ranging from 2,200 lb to 3,300 lb capacity, will be displayed. Also included will be reach trucks, driver-ridden fork lift trucks, stand-on driver reach fork lift trucks, electric tractors and hand pallet trucks.

C. H. JOHNSON (MACHINERY), LTD.

Stand No. J4B

Amongst the exhibits on this stand will be mobile coal weighing and bagging plant, together with tubular construction mobile adjustable elevation conveyor; a Loband loader for receiving material direct from end-tipping lorry; diesel dumpers will also be on view.

KEELAVITE HYDRAULICS, LTD.

Stand No. EE9

Hydraulic actuators; hydraulic pumps, power packs and hydraulic valves are to be shown by these manufacturers. Amongst the comprehensive ancillary equipment on view are newly developed pipe-couplings.

WILLIAM KENYON & SONS, LTD.

Stand No. NN5

The PowerGrip belt which will be displayed on this stand has, it is claimed, a unique patented construction and can operate with virtually 100 per cent mechanical efficiency. It

is stated to be particularly suitable for mechanical handling equipment as there is no possibility of slip and, where it is necessary to synchronize a number of conveyors, this can be done with complete confidence and accuracy as guaranteed revolutions are transmitted.

KIMBELL MACHINE TOOLS, LTD.

Stand No. JJ12

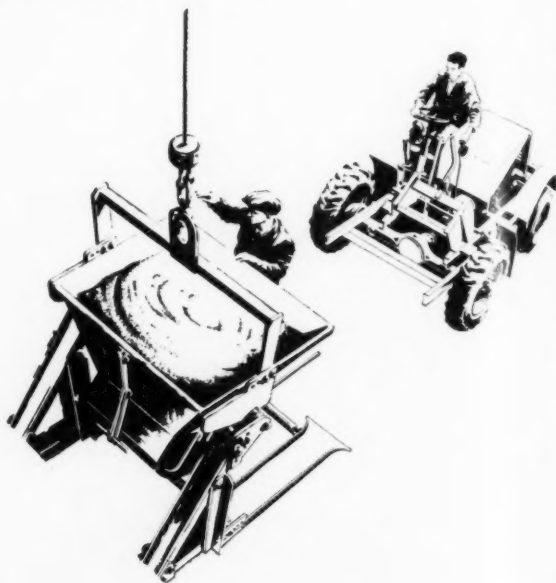
'Fix' unit containers will be displayed. A section of the stand is to be devoted to the various accessories which can make the basic units into a very wide system. Hand trucks will also be shown.

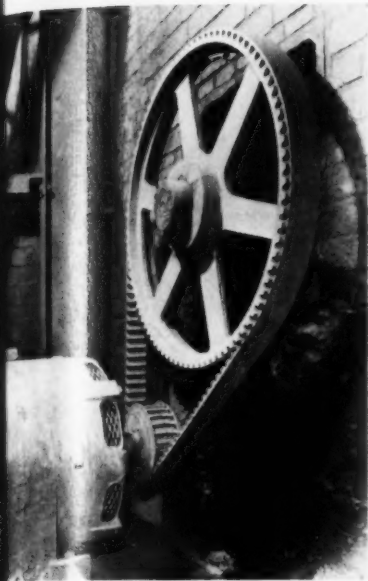
GEO. W. KING, LTD.

Stand No. F9

Conveyor installations for large and complex manufacturing

The new Johnson 'Twin/Sixty-five' diesel dumper with trip-skip. (C. H. Johnson (Machinery), Ltd.)





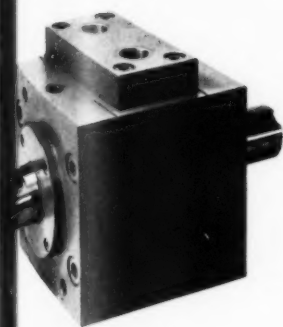
A King 'Dual-Duty' overhead chain conveyor installed recently at Ford's new paint, trim and assembly plant at Dagenham. A light-type dual-duty conveyor will be exhibited working on the stand of these manufacturers. (Geo. W. King, Ltd.)

(Top left) Powergrip belt-drive shown in use on a brickworks line shaft. (William Kenyon & Sons, Ltd.)

(Left) The model RN-32-2V Keelavite/Rotac rotary torque actuator; smallest unit of the range, it has double shaft extension. Develops 3,200-in/lb torque at 1,000 p.s.i. (Keelavite Hydraulics, Ltd.)

(Centre) The new 'My-te-Min' Mark II to be exhibited for the first time is available in capacities of $\frac{1}{4}$, $\frac{1}{2}$, 1 and $1\frac{1}{2}$ tons. Included with these models is a slack chain collecting box and a new type of pendant, mains reversing, 'snip-snap' pushbutton control. (Geo. W. King, Ltd.)

'Fix' Flexible storage unit. (Kimbell Machine Tools, Ltd.)



processes will be the main theme at this stand. The principal exhibit will be a King light 'Dual-Duty' overhead conveyor which will be arranged for fully automatic operation incorporating the King system of indexers. With the 'Dual-Duty' conveyor the load trolleys are propelled by the moving chain although not attached to it.

A new item being displayed for the first time will be the King 'My-te-Min' Mark II electric chain pulley block. This is a development of the well-known 'My-te-Min' range, and incorporates many important improvements including electro-magnetic disc brakes, automatic chain guards, unified threads for International standardization, and the new 'Snip-Snap' pushbutton control.

Other equipment will include a wide range of various other models of electric chain blocks, wire rope hoists and hand operated chain and rope blocks.

KRAUSSKOPF VERLAG

Stand No. HH4

Publishers of *Fordern und Heben*, a monthly journal dealing with handling, conveying and automations. Other journals and books covering the same subjects will be on show.





This Lamson V-trough conveyor will carry papers, cards, folders on a narrow belt which lies at the base of a V-shaped trough. (Lamson Engineering Co., Ltd.)

(Above right) This 'Jacacaddy' truck may be used for lifting and transporting drums, paper reels, etc. Drums can be easily transferred from a lorry to a rack or tilt. Hand operated multi-speed pump, battery power lift or mains power lift. (W. Langley & Co. (Mechanical Handling), Ltd.)

THE LAMPETER TIMBER & TRADING CO., LTD.

Stand No. LL2

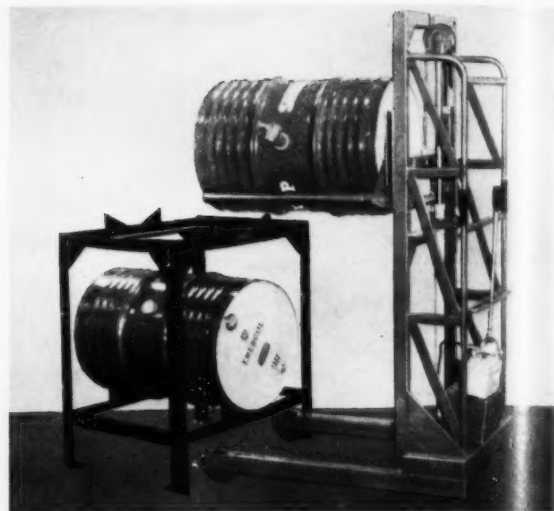
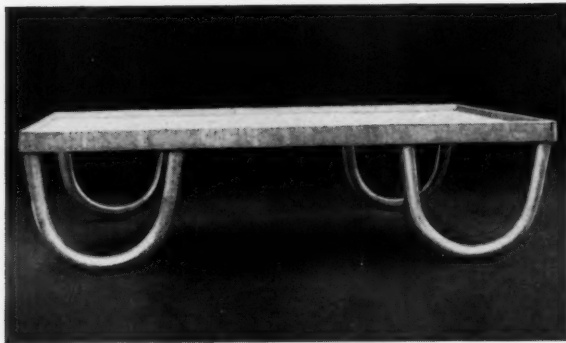
A range of full-size and scale models of timber pallets, both two and four-way entry types, together with a range of timber and fabricated steel stillages will be displayed on this stand.

LAMSON ENGINEERING CO., LTD.

Stand No. F2

These manufacturers will be showing a Lamson V-trough conveyor which will demonstrate a 90-deg bend. This conveyor will carry papers, cards, folders, etc., on a narrow belt, which lies at the base of the V-shaped trough. Also the Lamson Cabinet Junior tube system will be displayed, together with a continuous circuit tube system in transparent tubing.

Fabricated steel stillage, hot dip galvanized, with timber platform, for use in cold storage installation. (The Lampeter Timber & Trading Co., Ltd.)



LANCERS MACHINERY, LTD.

Stand No. M4

These exhibitors will be exhibiting models of their side-loaders. One is the '400' series Lancer sideloader and is obtainable in capacities of 3, 4 and 5 ton. It has been used with success in the timber, steel, engineering and allied trades in this country. These manufacturers have recently extended their range of sideloaders to cover machines with capacities from 3,000 lb to 8 long ton.

W. LANGLEY & CO., LTD.

Stand No. E5

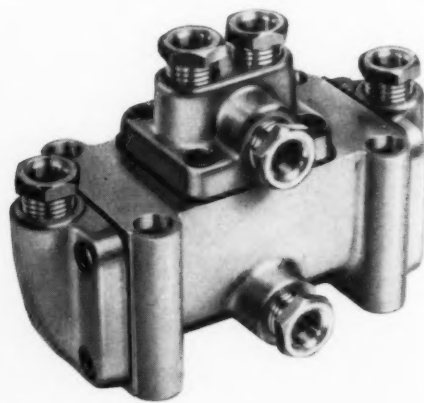
'Jacacaddy' hydraulic lifting trucks will be amongst the main exhibits on this stand. They will include a range of hand-propelled trucks for loading and stacking. Drum stackers, together with general-purpose trucks and automatically operated flexible rubber doors are also to be displayed.

LANG PNEUMATIC, LTD.

Stand No. HH24

On this stand a selection of valves, air-operated, solenoid operated, automatic and manifold mounting will be shown, together with cylinder unit and hydro-pneumatic unit and other allied equipment.

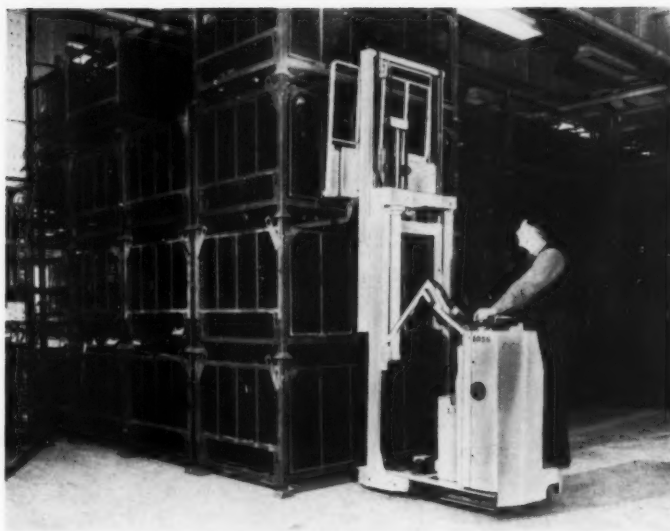
Lang totally enclosed 4-way automatic control valve. (Lang Pneumatic Ltd.)





Lenson 'H' type working platform made in any size up to 12 ft long by 4 ft wide. (Lenson Engineering Co.)

(Above right) A Lansing Bagnall reach truck working in one of the bulk storage areas at Ford, Dagenham. (Lansing Bagnall, Ltd.)



LANSING BAGNALL, LTD.

Stand No. F10 & A4

A wide range of these manufacturers' fork lift trucks and reach trucks (electric, pedestrian and rider controlled), together with power pallet and stillage trucks and industrial tractors will be on view at this stand. Amongst the trucks will be latest models of these manufacturers' straddle trucks and a new rider fork truck which is claimed to have outstanding performance. POEP2 pallet trucks will also be on view.

LAWTON (SUCCESSORS), LTD.

Stand No. FF8

A range of stillages and pallets, some made to customers' own design, will be exhibited here. Other models on show will be types of pallets supplied to the engineering and allied industries and the motor manufacturers.

LAYCOCK ENGINEERING, LTD.

ODDY ENGINEERING, LTD.

Stand No. KK13

Various versions of the Lodlifta lorry-loading platform are to be demonstrated by these manufacturers. They include a lorry-loading platform of 3 ton capacity, platform dimensions 8 ft x 8 ft; a floor-to-floor lift of 3 ton capacity, platform dimensions 8 ft x 4 ft.

LEE CASES, LTD.

Stand No. MM9

From their wide range of products these manufacturers will be showing a selection of timber pallets and stillages, together with examples of the wooden packing cases they manufacture.

LEGG (INDUSTRIES), LTD.

Stand No. DD8

On this stand will be displayed Legg battery-charging equipment for both vehicle and truck batteries.

LENSON ENGINEERING CO.

Stand E7A

A Lenson 'H' type working platform is to be displayed by

these manufacturers. These platforms can be made in any size up to 12 ft long by 4 ft wide. Vertical travel is obtained by hand or power-operated hydraulic pump. The model to be exhibited has a vertical travel of 5 ft, which can, of course, be increased on other models.

LIGHT ALLOY CONSTRUCTION, LTD.

Stand No. JJ3

Stand No. NN4

A wide range of light alloy containers are to be shown by these manufacturers. One example of the Tracon one-piece folding light alloy container which collapses to one-fifth of packed size for return journey. Latrol trolleys for handling materials inside the factory are also to be shown, together with lightweight trolleys for use in handling containers.

LLOYDS BANK, LTD.

Stand FF7

Lloyds Bank, Ltd., provides banking facilities at its stand for the convenience of exhibitors and visitors. Experienced officials are available to discuss financial problems arising from both home and overseas business. Lloyds Bank offers a complete banking service through its branches in England and Wales and its agents throughout the world, whilst the Bank's branches in India, Pakistan and Burma provide a special service for all classes of Eastern banking and exchange business.

LOCKER INDUSTRIES, LTD.

Stand Nos. K7, L6 and L7

The main feature on this stand will be the Locker Amplitrol feeder introduced for the first time. A new conception of design has been adopted in this mechanical feeder giving positive amplitude control.

There will also be a range of electric vibrating feeders for all duties, screens of varying sizes and designs, Locker Con-Wey constant weight feeders, and Locker Vimec mechanical conveyors.

LODEMATIC, LTD.

Stand No. L2A

Automatic sack and box loaders which lift and count automatically are amongst the new models to be displayed on this stand. There will also be stackers, manually propelled with up to 14-ft telescopic lift, powered by mains electricity or batteries, petrol or propane gas.

JOSEPH LUCAS (HYDRAULIC & COMBUSTION EQUIPMENT), LTD.

Stand No. KK10

A range of hydraulic pumps and hydraulic motors are to be shown on this stand, together with demonstration of hydrostatic transmission.

ALBERT MANN ENGINEERING CO., LTD.

Stand No. D1

Conveyors and electronic control equipment are marketed by this organization.

A cross-section of a heavy coil conveyor will be on display and, in the electronic control equipment section, a packaged unit incorporating a motor generating set and electronic equipment for the control of a variable speed 5-h.p. D.C. motor; also an electronic control cabinet for the automatic control and sequencing of a continuous strip casting, rolling, cutting, double coiling and handling installation.

A model of a 400-ton capacity 'Roll Race' sledge will also be shown.

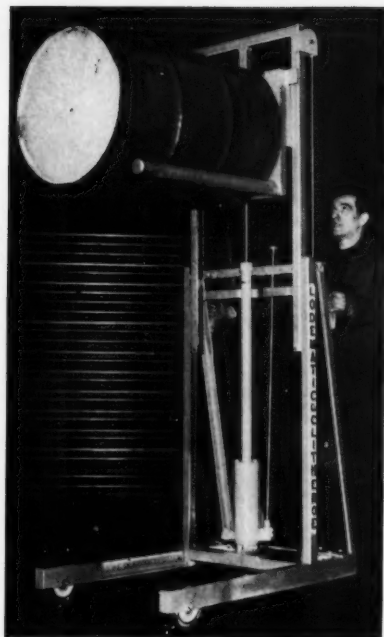
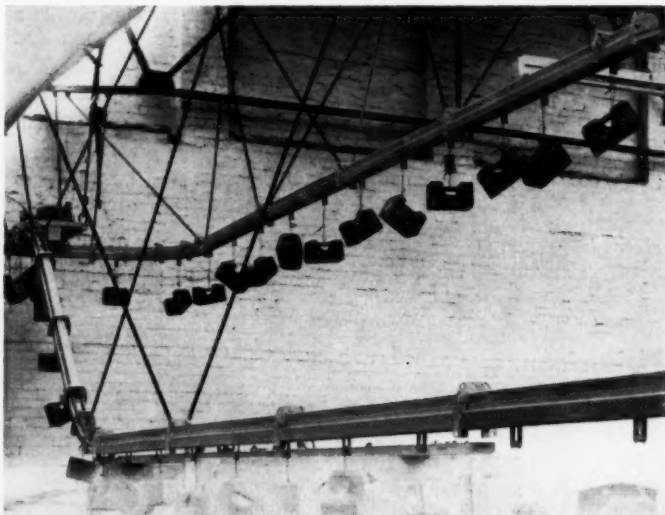
MANN (HANDLING), LTD.

Stand No. CC3

A range of conveyors and storage equipment will be shown by this subsidiary of Dickson & Mann, Ltd. The conveyors are of a new design which provides simple erection and effects cheaper production costs. Slat, belt, gravity and overhead are among the conveyor types to be demonstrated. The 'Mannplaner' overhead chain conveyor runs in a duct-type covering providing a neat appearance.

Also shown will be collapsible steel pallets, steel shelving to British Standard specifications and hoppers with quadrant doors. The parent company, Dickson & Mann,

Mannplaner overhead chain conveyor system. (Mann (Handling), Ltd.)



The new 'Lodematic' pedal-powered hydraulic drum stacker, with tubular forks. (Lodematic, Ltd.)

Ltd., will display items from their range of colliery surface equipment.

MANUFACTURERS EQUIPMENT CO., LTD.

Stand No. K4

To be featured will be the 'Rapistan' conveyor system. This includes the new adjustable pressure conveyor which accumulates cartons without increasing the line pressure. The new magnetic 'PressVeyor' cuts costs in handling ferrous items and will be seen on the stand.

In addition, there will be exhibited the Rapid Power Booster, which is a portable elevator. Also to be seen will be the Rapid wheel and Rapid roller conveyors with spur

A Rapistan magnetic 'PressVeyor' in use at the Pressed Steel Co., Oxford. (Manufacturers Equipment Co., Ltd.)





The new Massey-Ferguson 710 rear-mounted digger has a 185-deg operating arc when centrally mounted. It has a reach of 13 ft 8 in and can dig down to a depth of 12 ft. (Massey-Ferguson (U.K.), Ltd.)



The ALM 'Handiveyor' has a boom length of 13 ft 5 in and operates at a maximum delivery height of 7 ft 3 in; it will carry a distributed load of 2 cwt. (A. L. Marshall (Carlton), Ltd.)

curves. The latter are gravity units, but there will also be a selection of powered units.

A live roller unit which allows the sweeping off or stopping of items for inspection completes the overall system. In addition, a 'live' storage rack will be demonstrated. This type of racking enables goods to be 'first in—first out'.

ALEXANDER MARCAR & CO., LTD.

Stand No. FF2

Many manufacturers of fork trucks, lifting gear, conveyors and agricultural machinery utilize this company's extruded steel and steel-alloy raw material.

An unlimited range of different shapes is available, meeting modern and future design requirements. The maximum

extruded size is at present 7 in across the face and in lengths up to 66 ft.

Prices are from as cheap as 8d. a lb upwards and on the whole show considerable savings over the conventional form of fabrication.

Three important features of extrusion are: can be used to reduce fabrication costs, can be used to supplement hot rolled sections where the quantities required are not substantial, and suitable sections can be extruded out of special steel and steel alloys which are either difficult or nearly impossible to roll.

A. L. MARSHALL (CARLTON), LTD.

Stand No. J2

Featured on this stand will be the ALM extendable band conveyor and the ALM retractable roller conveyor. The company's portable 'Handiveyor' can operate inclined or horizontally providing great versatility in range of operations and goods to be handled. The boom is evenly balanced and can be manually adjusted simply and quickly.

Also to be shown will be an endless circuit which includes horizontal and inclined conveyors, a power feeder, overhead and right-angle transfers, a roller conveyor, etc.

In addition, a typical example of ALM chain conveyors will be exhibited and the new ALM 'MasterVeyor' circulating conveyor with power-driven turntables and special side benching.

MARTONAIR, LTD.

Stand No. EE6

Selections from a very large range of pneumatic and hydraulic equipment will be shown by this firm.

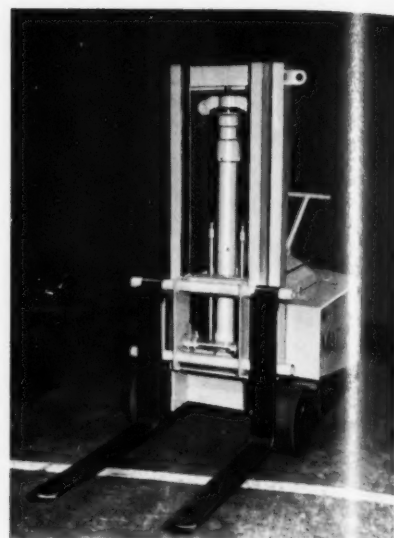
Part of the display depicts the variety of end products with which Martonair equipment is concerned in manufacture or handling, and is an illustration of the diversity of industries in which pneumatics have contributed to efficiency.

Other exhibits will demonstrate the sequences and motions obtainable from pneumatic cylinders and control valves, together with displays of sectioned equipment, including new items recently introduced into the range.

MASSEY-FERGUSON (UNITED KINGDOM), LTD.

Stand No. E4

This organization will be showing their comparatively new



The Matling 'Squirrel' fork lift truck $\frac{1}{2}$ -ton capacity, 7 ft 6 in lift, is of rugged construction and suitable for general-purpose work. (Matling, Ltd.)

(Left). Matbro Series III fork lift truck, working indoors round a right corner. (Matbro, Ltd.)

light tractor equipped with a front-mounted power shovel and a rear-mounted digger. This versatile three-in-one unit (when the above attachments are detached, the machine serves as a normal tractor) is suited to all manner of applications: moving earth and all kinds of dumped material, digging ditches, on building and civil engineering sites for municipal authorities, builders, transport undertakings and constructional engineers.

The rear-mounted digger has a 185-deg operating arc when centrally situated and a reach of 13 ft 8 in. It is claimed to be one of the few diggers that can be offset for flush digging alongside a wall or fence.

Alternative buckets for different applications are available for the front mounting and special attachments: fork lift, angle dozer, crane and scarifier. Also on show will be a tipping trailer and another tractor.

MATERIALS HANDLING EQUIPMENT (GT. BRITAIN) LTD.

Stand No. K8

Exhibited for the first time will be the 'Lizard' side-operating reach truck of 3,000 lb capacity, battery powered. This truck is capable of right-angle operation.

Also to be seen will be the 'Falcon' side-operating fork lift carrier of 12/13,000 lb capacity, diesel powered; the 'Traveloader', heavy-duty side-operating fork lift transporter of 30,000 lb capacity, diesel powered, which, it is claimed, is the longest machine of its type in the world; the 'Valmet' super fork lift straddle carrier of 15,000 lb capacity, diesel powered. The latter machine is also being shown for the first time.

MATBRO, LTD.

Stand No. G4

This company will be displaying their full range of diesel and petrol fork lift trucks which are designed with capacities of 4,000, 6,000, 8,000, 10,000 and 12,000 lb. Lift heights are up to 24 ft.

This range of machines is particularly suited to handling loads over all kinds of open terrain, such as Government field stores, large industrial outdoor material stacks, big

builders merchants stores and on construction projects of all kinds. The trucks are so designed that they can operate effectively indoors, thus enabling, for instance, the transfer of raw materials or large accessories from outside stores to the production lines.

Also on show will be the company's 'Mastiff' and 'Super Loadster' heavy power shovels.

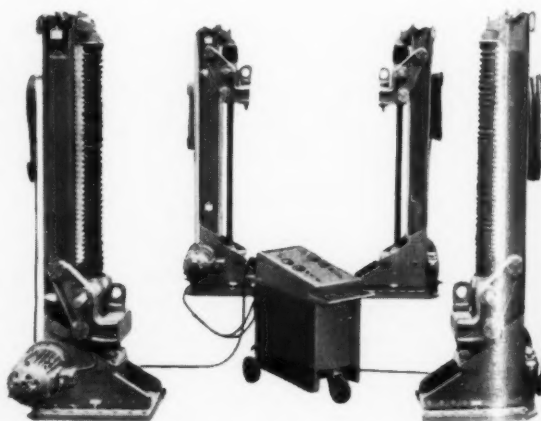
MATLING, LTD.

Stand No. H1

Battery-operated trucks of all kinds for palletization and capable, also, of handling goods in other forms will be exhibited. There will be the 'Squirrel' pedestrian-controlled fork lift truck, $\frac{1}{2}$ ton capacity, with a 7 ft 6 in lift.

In addition, pallet and stillage transporters (4,000 lb capacities), straddle transporter (3,000 lb capacity), straddle fork truck (2,000 lb capacity) and a tool and die handler with a 6,000 lb capacity.

Set of four 20-ton electric screw-type jacks with mobile control desk. (Matterson, Ltd.)



Such trucks can handle pallets in all positions, but once the following attachments are fitted the whole gamut of material trucking is encompassed: squeeze clamps, booms, jibs, pole forks, extension fingers, etc.

MATTERSON, LTD.

Stand No. L8

This firm are specialists in the manufacture of electric lifting equipment, components and accessories.

Therefore, in this field they will feature a 30-ton capacity, double-rail, electric travelling crab, and other 'Matterson' crabs of various capacities. A wide selection of crane components will be on show and, in addition, Matterson wire rope electric hoist blocks in various capacities up to 10 tons.

A further type of electric lifting machine to be shown will be a set of four 20-ton capacity electric screw-type jacks. This powerful equipment is controlled from a mobile desk and is used to service the modern electric locomotives.

MAXAM POWER, LTD.

Stand No. DD3

This firm specialize in hydraulic and pneumatic power cylinders and control valves providing a wide variety of inter-machine handling equipment effecting flow production in many types of factory shops, including machine-tool and press shops.

Many Maxam transfer set-ups are flexible in that they can be moved from machine to machine and connected to the power supply and set in motion to act as mechanical workmen.

Many examples of the applications of these units will be on show including a pneumatically operated conveyor unit.

'MECHANICAL HANDLING'

Central Aisle, Ground Floor

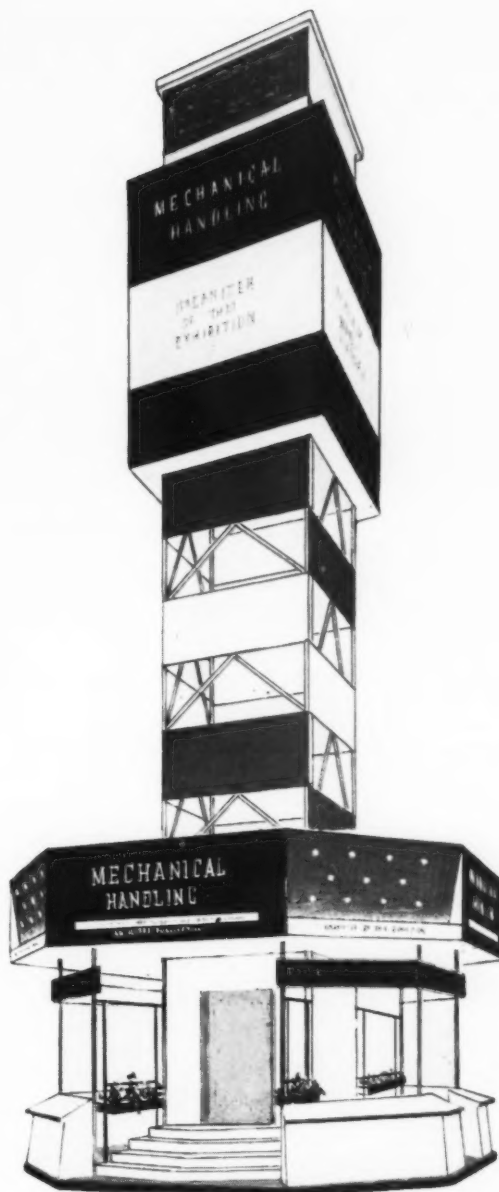
This is the main information centre for the Exhibition. Copies of *Mechanical Handling* (by whom the Exhibition is organized) are on sale, and many of the equipment specification lists produced by the editorial staff of the journal are available free of charge. Copies of 'Materials Handling News' will be available. Interpreters are also available at this stand for the convenience of overseas visitors.

MERCURY TRUCK & TRACTOR CO., LTD.

Stand No. G10

This company's trucks are seen throughout industry—shunting, towing and handling all types of products from

Mercury Shuntug 55 diesel shunting tractor fitted with torque converter employed by the Distillers Co., Ltd., at their chemical works in South Wales. (The Mercury Truck & Tractor Co., Ltd.)



Artist's impression of the 'Mechanical Handling' Information Centre which will be situated in the Centre Aisle, ground floor

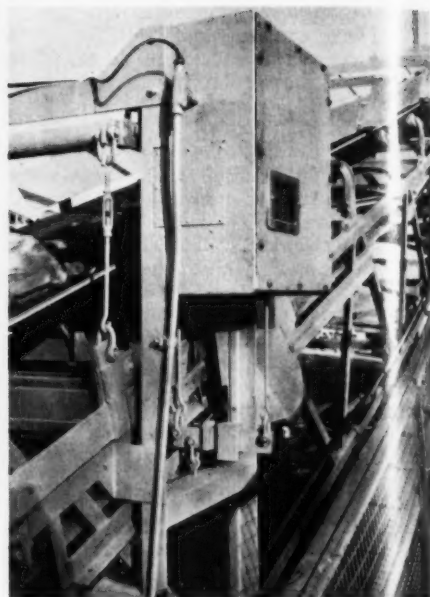
chemicals to parcels. The following specific machines will be seen:—

Airtug 70P diesel tractor with torque converter, for towing aircraft up to 170,000 lb. The machine has a draw-bar pull of 10,000 lb. The Shuntug 55F diesel tractor, which is a dual-purpose shunting and towing tractor fitted with a Brockhouse torque converter. It has a shunting capacity of 180 tons and a draw-bar pull of 5,500 lb.

Other tractors are: 45P diesel towing tractor with draw-bar pull of 4,000 lb; 30P diesel towing tractor with draw-bar pull of 3,000 lb; 20ACD diesel towing tractor with draw-bar pull of 2,000 lb; 10F petrol towing tractor with draw-bar pull of 2,000 lb; 10F2 petrol works truck with a carrying capacity of two tons and a draw-bar pull of 2,000 lb. There will also be a 6,000-lb capacity trailer.



Meco belt conveyor telescopic giving 30 ft advance. Note five idlers still in 'bank' ready for next extension. (The Mining Engineering Co., Ltd.)

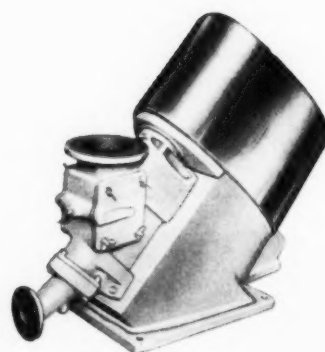


(Top right) The Merrick SV 'Weightometer' belt weighing machine. (Merrick Scale Mfg. Co., Ltd.)

(Right) Bin-type pallet with side discharge door for handling scrap, etc. (M.G.K. Engineering Co., Ltd.)

(Right below) The Mono junior powder pump, for discharge rates up to 5 cu. ft. of powder per hour, is a useful unit for small batch powder transfer and dosing. (Mono Pumps, Ltd.)

(Bottom right) The new 'Arden' collapsible pallet made by Metal Products (Arden), Ltd.



MERRICK SCALE MANUFACTURING CO., LTD.

Stand No. DD5

The Merrick SV 'Weightometer' belt weighing machine will be shown. This can be fitted to horizontal or inclined conveyors and will totalize the weight of material passed over. The heart of the 'Weightometer' is an ingeniously designed mechanical integrator which continuously multiplies two varying quantities. These are the ever-varying load on the conveyor and the slightly varying belt speed of the conveyor.

All types of instrumentation can be supplied with the machine, both electronic and pneumatic. The weight recorder, which shows the weight of the material passed over the conveyor, can be at a remote position if so desired.

Other variations of this type of machine will be shown.

THE METAL BOX CO., LTD.

Stand No. GG15

Conveyor for cans or similar objects. The conveying element is a wire rope on which the objects are carried between guide rails on a climbing zig-zag course from ground level to a height of 11 ft. Associated with this installation will be electronic counting and batching, and selectors and regulators of unwanted objects by colours.

A return flow bagging unit. A pre-packaging conveyor for packing and weighing into plastic bags.

A standard belt conveyor, a magnetic elevator for metal containers or similar objects, and a carton forming machine.

METAL PRODUCTS (ARDEN), LTD.

Stand No. LL9

The principal feature will be a collapsible-type box pallet



of registered design. This pallet is called the 'Arden' and the opposite sides can be removed for access to the contents. When the pallet is collapsed it reduces to one-fifth of its erected height. The pallet can be supplied to meet customer's requirements: sides and base of sheet metal, wire mesh or expanded metal.

Many other types of pallet and stillage will be shown—box and post type—and unit-type storage racking for use with standard-type tote boxes.

MIDLAND BANK, LTD.

Stand No. HH26

A complete banking service will be provided at the exhibition. All visitors and exhibitors, whether customers of the bank or not, will be able to make use of these facilities which are available during the full exhibition hours. For those concerned with trading abroad special services are provided by the bank's Overseas Branch. A representative from the Foreign Trade Information Department will be available to discuss matters connected with overseas trade and its finance.

THE MINING ENGINEERING CO., LTD.

Stand No. K3

There will be shown a quarter-scale working model of a telescopic section, at the tension end, of a belt conveyor, which permits the return drum unit to be pulled in by the exact amount required, whilst the conveyor is running. Nothing needs adjusting or adding for 30-ft advance. This model will be working with a similar-sized model of a radial spreader.

Also to be shown will be a belt-conveyor structure with suspended idlers giving a variable troughing angle. Shallow troughing with no load gives excellent training of empty belt. Deep troughing under load gives a remarkable undulation-free passage for the belt and eliminates spillage.

The structure will take the form of two standard full-size sections on which one of the suspended idlers will automatically demonstrate the variable troughing angle.

In addition, the company will show a complete range of idlers and rollers for belt conveyors of all kinds.

MITCHELL ENGINEERING, LTD.

Stand No. H3

Of particular interest will be the section of 'Serpentix' conveyor (made under licence from Stubbe-Metalistik). This conveyor has a unique belt design which enables the conveyor to traverse small-radius curves and to convey materials at much steeper angles than are normally associated with bulk conveyors.

Also to be demonstrated will be a rotary paddle feeder for extracting granular materials from a hopper shelf. The feeder consists of a multi-bladed rotating plough mounted on a travelling carriage. Plough and travelling speeds are variable according to capacities required.

Also a model of a typical 'Parcar' mechanical car park. Cars are parked by lift, each carrying two cars at a time and moved from the lift and parked by mechanical dollies.

Finally, there will be seen a totally enclosed cable car.

M.G.K. ENGINEERING

Stand No. D6

This firm manufacture a wide range of both static and mobile storage and handling equipment within the general field of palletization.

As a consequence the visitor will see: mild steel and timber pallets of various designs, hand trucks, semi-mobile equipment with tow-levers, and pallet and storage racks. Tote pans and special pan racks, collapsible crates (stackable and non-stackable), pneumatic-tyred flat-topped trailer, drop-bottom discharge bin, automatic tongs for bar-

handling pallets, and a rotary sling for discharging standard box pallets.

MONTGOMERIE REID ENGINEERING CO., LTD.

Stand No. D2B

Battery electric trucks are marketed by this company. They will show the 'Powerstack' fork lift truck, 12 cwt capacity at 15-in load centres from the heel of the forks.

The 'Tunstack' fork lift truck which has a capacity of 3,000 lb at 20-in load centres from the heel of the forks.

Another battery electric fork lift truck with a capacity of 15 cwt at 20-in load centres from heel of forks. This is a new model which will be shown for the first time.

Also a battery electric industrial platform truck which has a 1 ton capacity.

MONO PUMPS, LTD.

Stand No. JJ7

A model on this firm's stand will demonstrate to visitors the simple but ingenious principle of the Mono pump whereby that curiosity of geometry, hypocycloid, is used to provide the characteristics necessary for its versatility in industrial application.

Provided a carrying vehicle is present to assist in passage through the pump it will handle quite sizeable solids and viscous substances such as animal offal when suspended in fluid and dry powders when fluidized by air injection. Several demonstrations will indicate its many applications.

The Powder Pumping Division will display their new 'Junior' powder pump. This is a small compact unit developed to provide a practical answer to the problem of small-batch transfer of powder and, at the same time, it can be applied as an effective device for dosing or blending powders or for bleeding-off small quantities of powder from draw-off points in a powder-handling system. The rate of discharge can be varied up to a maximum of approximately 5 cu. ft. of powder per hour.

MORSE CHAIN DIVISION & HARTCLIFFE CHAINS DIVISION OF BORG-WARNER, LTD.

Stand No. EE3

The following will be shown by this company:

Bush roller chains to British and American standards, roller-chain pinions and wheels, shear-pin chain wheel, torque-limiting clutches, detachable plate sprockets and standard hubs, cable chains, and flexible chain couplings of bush roller, nylon chain and inverted-tooth types.

Part of an extensive Morris overhead chain conveyor scheme handling reels of cotton for J. & P. Coats, Ltd. (Herbert Morris, Ltd.)





Two Neal NS 70HC cranes fitted with hydraulic cantilever jibs. This type of jib is particularly suitable for close working, high stacking or low headroom conditions. (R. H. Neal & Co., Ltd.)

Also inverted-tooth chains and sprockets, Borg-Warner one-way clutch, Hartcliffe conveyor chains and wheels, Hartcliffe conveyor chain attachments, Hartcliffe cable chains and special-purpose chains.

HERBERT MORRIS, LTD.

Stand Nos. J14 and H12

The company is able to plan, manufacture and install complete mechanical handling systems for all industries. An actual installation on stand H12 of a box-handling conveyor scheme incorporating an overhead chain conveyor, roller conveyor, finger-tray elevator and belt humpert will demonstrate and illustrate this service.

On stand J14 a Morris 3-ton electric overhead crane, push-button controlled and embodying slow speeds as well as normal speeds, will symbolize the wide range of cranes available. The gantry for the crane will serve as a support for four swing-jib cranes, each of which will have a different type of lifting unit: electric hoist block, electric chain hoist, light-weight pulley block and ball-bearing triple-gear pulley block. Also the Morris lever pull-hoist, a versatile lifting and pulling tool, will be demonstrated.

THE MOSS GEAR CO., LTD.

Stand No. KK4

Worm-gear reduction units will be displayed by this firm. Also geared motors, geared sleeve couplings, universal joints and propeller shafts (including slipping clutch P.T.O. shaft).

Front-drive steering axle for a four-wheel-drive vehicle, etc., worm-drive rear axles for industrial trucks, cam shafts, and a variety of other gearing—spiral, bevel, worm, etc.

MUCON ENGINEERING CO., LTD.

Stand No. LL5

There will be shown a full range of flexible sleeve valves from 2-in to 12-in bore, arranged for wheel or lever hand control as well as pneumatic and electric auto-control. These valves are suitable for the control of air, slurries,

sugar, flour, corn flakes, plastic powders, mixed concrete, carbon black, tablets, explosive powders, chemicals, confectionery, cement, bone chips, dust, etc.

As a flexible gland the Mucon valves have limitless applications, some of which are demonstrated on the stand. Accessories for sack or bin filling, discharging and weighing applications will also be exhibited.

MURPHY RADIO, LTD.

Stand No. MM3

The 'Transweight' system for weighing belt-conveyed solids will be demonstrated. This patented system for continuously weighing and controlling free-flowing solids will be shown publicly for the first time in Europe, having been proven in hundreds of installations in the United States, Canada and Australia.

The system employs a weighing carriage, a load cell for sensing the material weight on the belt, a Selsyn transmitter, the output of which is proportional to belt speed, and the 'Transweigh' integrating meter which accurately and remotely indicates the rate and totalized weight of the conveyed material.

The 'Transweigh' system has been installed for many and various applications amongst which are inventory weighing, loading to pre-set weights and the blending of several materials, as in sintering, chemical and food manufacturing processes.

FRED MYERS, LTD.

LEVERTON & CO., LTD.

Stand Nos. J10 and H6

The first truck models from the new Hyster British factory will be seen on this stand.

The range of trucks marketed for the Hyster Company covers a lifting capacity of from 1,000 to 40,000 lb.

Amongst the special features will be trucks fitted with the new exclusive Monotrol push-button control incorporating the Hyster power-shift transmission. Included in the L.P. gas truck range will be the new Hyster 'Space-Saver 100' of 10,000 lb capacity which, it is claimed, has proved to be the most compact and manoeuvrable truck in its class. The Hyster H80B makes its initial appearance and features the dual-range power-shift transmission.

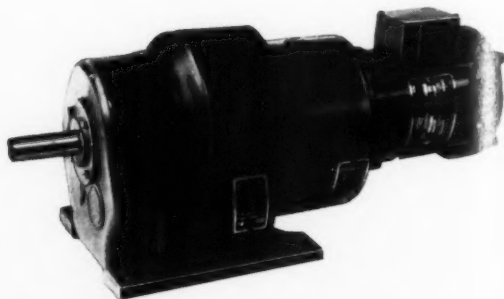
Also to be shown will be the Hyster Ransomes range of battery electric trucks of 1,000 to 5,000 lb lifting capacity. From the same factory will be towing tractors and elevating platform trucks.

Finally, there will be a comprehensive range of attachments and accessories.

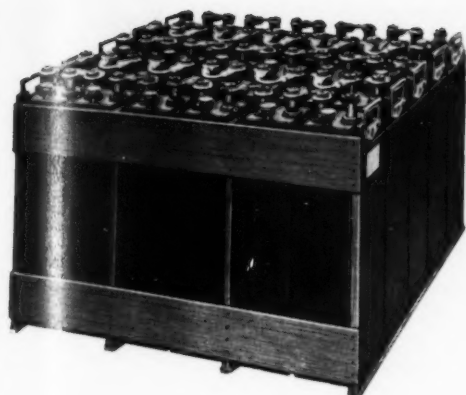
R. H. NEAL & CO., LTD.

Stand No. H7

Four models are to be displayed from the extensive range of Neal direct-diesel-driven mobile cranes with ratings of up



Type DS geared motor fitted with auxiliary gearbox to give a range of very low speeds. (Normand Electrical Co., Ltd.)



Typical 36-volt 900-ampere-hour battery of the Britannia tubular nickel-iron-alkaline type used in Yale fork lift truck engaged in transporting and stacking steel ingots at a steel works in Western Canada. (Nife Batteries)

to 25 tons. The NL 250 heavy-duty truck-mounted crane rated at 25 tons at 10-ft radius, the NS 70HC cantilever jib-type rated at 6 tons at 10-ft radius, the NS 55 rated at 6 tons at 10-ft radius, with the all-hydraulic 'Hymax' having a 4½-ton rating.

NIFE BATTERIES

Stand No. KK18

The company will display two British types of alkaline traction batteries, i.e. the Nife nickel cadmium and the Britannia tubular positive plate nickel iron. Both types are built of steel, giving tremendous mechanical strength with resistance to shock and severe vibration. The batteries consist of steel cells held by ebonite suspension boss insulators in crates of seasoned hardwood.

The plate construction prevents loss of active material and the alkaline electrolyte is a preservative of steel. The electro-chemical reactions for both types are almost completely reversible, resulting in extremely long working life. Both types can be fully charged in seven hours or less, and given boost charges if necessary.

Generally either type can be used for a given application and the two types between them cover a wide range of sizes and capacities.

Although steel alkaline batteries cost more initially than other types, their length of life and economy and simplicity of operation, it is claimed, make them the cheapest on a long-term analysis.

NORMAND ELECTRICAL CO., LTD.

NECO GEARED MOTORS, LTD.

Stand No. HH8

This company will be showing a range of Neco geared motors in eight different types, some in section.

In addition a range of Neco standard industrial small motors for various voltages with flange and foot mountings. Also traction motors and flame-proof motors, a full range of Neco speed reduction gearboxes, Neco magnetic brakes, and a Ward-Leonard speed control set controlling a type DS geared motor.

THE NORTHERN MANUFACTURING CO., LTD.

Stand No. FF10

This company will be showing a selection from their many products in machine-cut gearing as individual wheels and enclosed units.

Gear units: spur, bevel, spiral, spiral bevel, single and

double helicals, fan-cooled worm gear units, small universal worm gear units, shaft-mounted units and enclosed gears for special applications.

Industrial loose gearing: spurs, bevels, spirals, spiral bevels, single and double helicals, worms and gears, non-metallic pinions, and flexible and rigid couplings.

NUMEC, LTD.

Stand No. KK8

The following will be exhibited: Numec conveyor belting with patented corrugated sides, a portable conveyor of patented design, a prefabricated conveyor of patented design, light-duty powered conveyor and a gravity roller conveyor.

ODDY ENGINEERING, LTD.

Stand No. KK13

Productions of the hydraulic division of this company will be represented by hydraulic telescopic cylinders for drilling jigs and high-pressure power-pump units giving pressures up to 10,000 lb/sq. in.

OLDHAM & SON, LTD.

Stand No. KK14

The 'Pg' batteries to be displayed on this stand incorporate the double-sleeve multi-tube design, the constructional details of which will be shown by means of sectioned cells. Batteries for popular types of fork lift trucks will also be exhibited. On the stand will also be seen the new Oldham traction battery chargers, incorporating germanium rectifiers in both taper and two-rate versions.

OMIC, LTD.

Stand No. F12

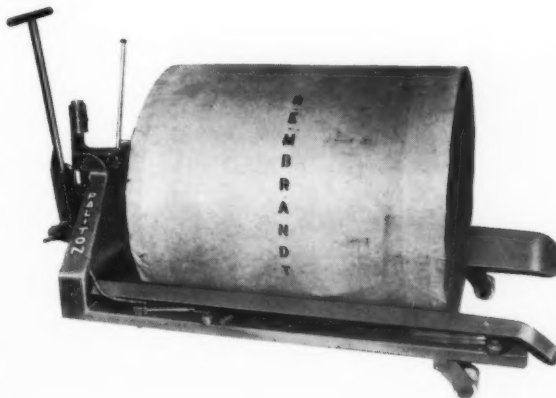
In a comprehensive selection of their extensive range of equipment this company will be exhibiting the Paliton hand pallet truck in various models, some fitted with a special internal expanding brake for safety on inclines. Other exhibits will be the electrically operated Paliton, also with adjustable forks for carrying reels, 4-ton and 10-ton electric tractors, straddle stackers, pallets, stillages, stackable and collapsible wire-mesh crates, post pallets and lifting tables.

S. E. OPPERMAN, LTD.

Stand No. GG11B

A comprehensive display of power transmission equipment will include ½-h.p. to 50-h.p. geared motors, worm reduction gears in a variety of sizes and types for different drives,

The Paliton adjustable-fork truck for handling paper reels and drums. (Omic, Ltd.)



including vertical-drive worm reduction gears of special design for liquid agitation. Spur, bevel and mitre gears and a range of ancillary equipment.

S. PARSONS & CO., LTD.

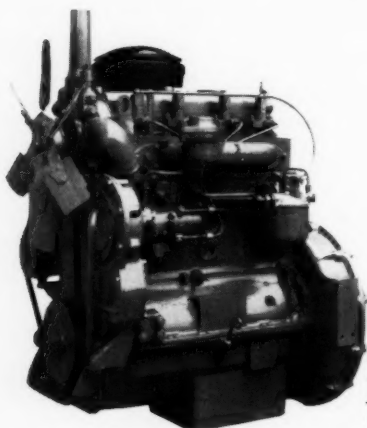
Stand No. LL6

Specially designed for display purposes, the Electromatic feed control unit will demonstrate on this company's stand how Parsons weigh dials can be fitted with mechanical or electro-mechanical cut-off devices automatically to control the flow of free-flowing materials for straight discharge or proportional mixing. A platform weigher fitted with electro-mechanical devices linked with valves will demonstrate automatic filling of drums with liquid according to weight, and another machine will demonstrate the weighing of goods passing along an overhead conveying track. A dial bench scale will show how a weighing machine can weigh articles passing along a roller conveyor system. Other exhibits will be cut-off devices that can be fitted to Parsons weighing machines and the Parsons system of weight recording.

PATERSON HUGHES ENGINEERING CO., LTD.

Stand No. J8B

A new production to be shown is the P.H.5 1-ton electric hoist block, combining the advantages of total enclosure with easy accessibility for maintenance and both initial and running economy. Also to be shown are overhead travelling



60-h.p. Perkins Four 203 industrial engine on view for the first time (Perkins Engines, Ltd.)

cranes and disc-type conveyors for handling steel plates of all sizes, as installed in shipyards. The conveyors may be used for transporting plates from one point to another, and transfer units can be supplied for moving them laterally on to different conveyor paths. Special conveyors are designed for use under profile cutting machines.

In addition, Paterson Hughes will have in attendance a staff of handling engineers ready to advise on all mechanical handling problems involving the use of cranes, conveyors and overhead monorail systems.

PENFOLD FENCING & ENGINEERING, LTD.

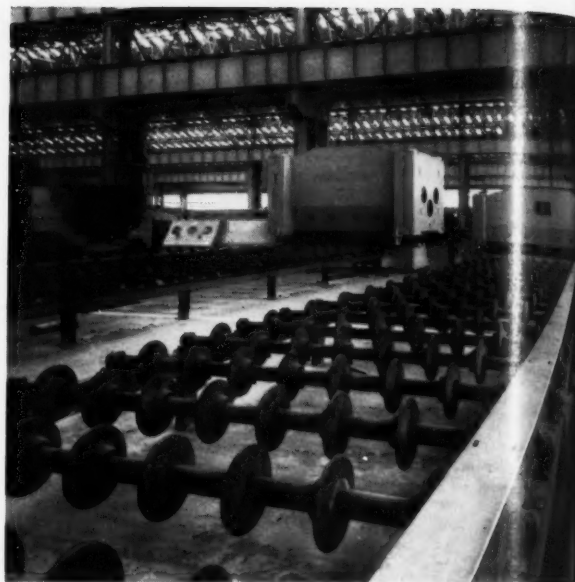
Stand No. FFI

Specimen pallets and stillages from actual production runs to be displayed on this stand are typical of the many and varied designs and constructions which can be fabricated by the company to meet individual requirements.

PERKINS ENGINES, LTD.

Stand No. GG17

To be shown for the first time since it was announced in October is the new Perkins 60-h.p. Four 203 industrial



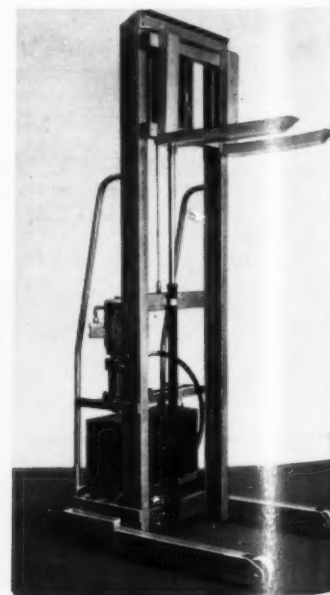
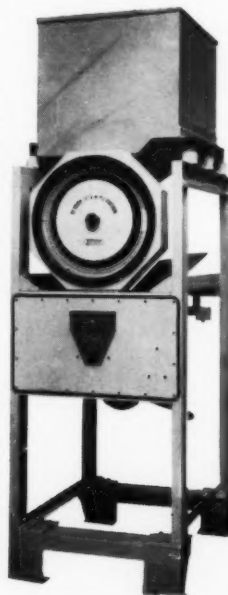
Heavy-duty disc-type plate-handling conveyor installed in a modern shipyard. (Paterson Hughes Engineering Co., Ltd.)

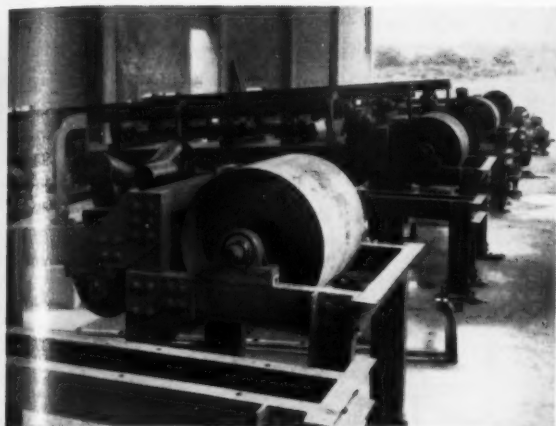
diesel engine of 3.6-in bore, 5-in stroke and 203.5 cu. in. capacity. Available with hydraulic governor for variable-speed applications, it is rated up to 60 b.h.p. at 2,400 r.p.m. For continuous use, fitted with mechanical governor, it develops 47 b.h.p. at 2,000 r.p.m. Maximum torque is 151 lb/ft, obtainable at 1,350 r.p.m. Features of this engine include adequate provision for power take-offs, chromium-plated steel thin-wall cylinder liners and the Perkins combustion system.

Other Perkins engines on view will be three-, four- and six-cylinder units, ranging from 33 b.h.p. at 2,000 r.p.m. to

(Below right) The Vertolifter battery-powered hydraulic elevator truck. (Powell & Co.)

(Below left) The Electromatic feed control unit with weigh dial and cut-off switch. (S. Parsons & Co., Ltd.)





Self-Lube ball-bearing pillow blocks fitted to a battery of 24-in boom-loading conveyors. (Pollard Bearings, Ltd.)

105 b.h.p. at 2,000 r.p.m. maximum rating for continuous running. All Perkins engines are available in stage-by-stage form up to a complete power pack, and can be specially adapted to individual applications.

F. PIPER & SONS, LTD.

Stand No. DD12

Mobility productions of this company will be represented by industrial and workshop trucks, bin carriers, and castors and wheels for industrial trucks. With these will be shown Piper pallets, stillages, sling iron work, clothes racks and locker assemblies.

CHARLES PITT (BARTON STACEY), LTD.

Stand No. E1

Industrial trailers from 5 cwt up to 10 ton capacity, including pole-type trailers, are shown. These pole trailers are used extensively in timber and steel yards.

THE PLESSEY CO., LTD.

Stand No. FF3

On this stand will be seen the Plessey Alpha and Gamma range of hydraulic pumps, single- and multi-way control valves and hydraulic rams of the single, double-acting and follow-up types. The type G33 hydraulic motor and hydraulic systems will also be displayed.

POLLARD BEARINGS, LTD.

Stand No. JJ6

The Self-Lube self-lubricating, self-sealing, self-aligning pillow blocks and bearing units will be one of the main displays on this stand. They are of the flange, pressed flange and cartridge types and take-up bearing units, of $\frac{1}{2}$ -in to 6-in bore. A test rig will demonstrate Self-Lube units operating in desert and sand-storm conditions. There will also be displayed solid and flexible as well as Max-Load high-capacity roller bearings and sealed-for-life bearings for all types of conveyor rollers.

POWELL & CO.

Stand No. B7

A new telescopic stacker in the Vertolifter range will be shown by this company, and it is hoped also to demonstrate

their new power-propelled fork-lift stacker of 2,000 lb capacity as well as the recently introduced hand winch elevator truck for light loads. Other exhibits will include examples of specialized equipment for the safe handling of drums, barrels, bins, carboys and cases, the new Stak-a-Drum drum storage units, pick-up drum trucks, carboy tilters, low-loading bogies and roller crowbars.

POWELL DUFFRYN ENGINEERING CO., LTD.

Stand No. J16

Manufactured under licence and to be shown in this country for the first time, is the American Dempster-Dumpster integrated system of vehicles and containers for economic handling of all types of material in bulk. Containers of 1 cu. yd. to 15 cu. yd capacity and up to 9,000 lb laden weight can be lifted to a dumping height of 10 ft or automatically self-loaded into compaction bodies of 18, 24 or 30 cu. yd. capacity. Three of five main types to be shown are the LFW Dumpster, which will lift, with chain slings, 1- to 15-cu.yd. containers, the GRD Dumpster, which will handle similar containers, with maximum lift of 9,000 lb., to a dumping height of 10 ft clearance, and the Dinosaur, which can pick up and put down its own body, loaded or empty, ranging from 10 to 40 cu. yd., and up to 30,000 lb gross loads.

POWER JACKS, LTD.

Stand No. C5

This company will be showing the Hydratruck elevating truck for hand or hand-electric operation. Hand, dual-displacement and motorized hydraulic pumps. Valves, jacks of $\frac{1}{2}$ to 11 tons lifting capacity of the extension, double-acting and retraction types up to 4 ft stroke. A selection of clamping equipment, including cylinders, lever and screw pumps and hydro-pneumatic intensifiers.

PRESSOTURN, LTD.

Stand No. JJ11

This company's Tote System Division will show the Tote system of unit bulk handling of solid and liquid materials. Tote bins of 42, 74 and 110 cu. ft. capacities for handling all types of powdered and granular materials, together with tilt discharge units for each type of bin. Tote liquid bins of 300 and 400 gal capacities will also be displayed.

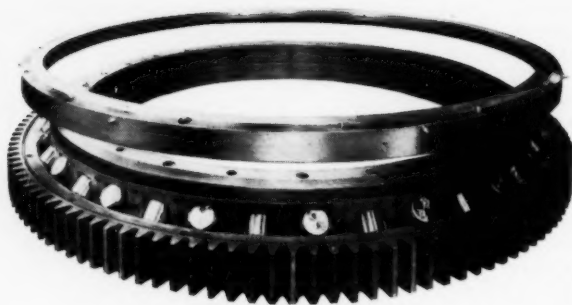
PRIESTMAN BROTHERS, LTD.

Stand No. G11

Two models of the Priestman Cross-Roll bearing for

A Dempster-Dinosaur picking up its 24-cu. yd. body. (Powell Duffryn Engineering Co., Ltd.)





Cross-Roll bearing slewing ring. (Priestman Brothers, Ltd.)

slewing mechanism will be displayed by this company. It is now the standard slewing ring for Priestman Cub and Tiger excavators and grab dredging cranes, and has many other applications, such as radar scanners, a welding manipulator, a steel mill pulpit, wind tunnel turntable, armoured vehicle turrets, overhead gantry cranes and mobile and truck-mounted cranes.

Also on view will be a 40/32-cu. ft. narrow heavyweight digging grab, a 37/30-cu. ft. sugar-cane grapple and a 20-cu. ft. Cactus grab.

PROMECON MANUFACTURING CO., LTD.

Stand No. CC8A

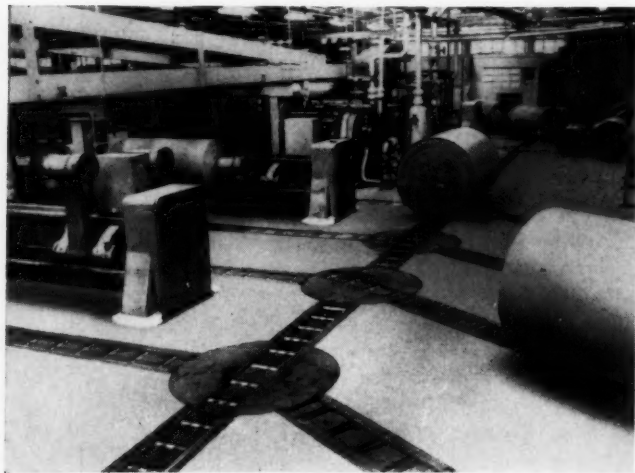
The display on this company's stand will include examples of their P.M.L. track units and a turntable which together will form the stand counter-top. Supplementary displays on wall panels, indicating the scope of their sister, consultant company, Promecon, Ltd., will include examples of design, development and drawing work.

RACK ENGINEERING, LTD.

Stand No. A2

Included in a range of storage equipment will be exhibited the new Rack stacking U frames for bar storage. Also to be shown are Rack conveyors together with tray and peg accessories, the instantly adjustable pallet rack with special adaption for steel sheet storage, the 500 series 'Do It Yourself' warehouse racking and Vidmar storage and tool

A typical P.M.L. turntable installation on suspended floor at the Brentford plant of Reed Corrugated Cases, Ltd. (Promecon Manufacturing Co. Ltd.)



cabinets. Other exhibits will include 1-ton hydraulic and $\frac{1}{2}$ -ton mechanical pallet trucks, 1-ton and $\frac{1}{2}$ -ton hydraulic feed tables and Rack industrial castors.

RANSOMES AND RAPIER, LTD.

Stand No. G7

A new first-time exhibit will be the Rapier 1520 mobile crane with 70-ft strut jib. Extendable strut jibs from 30 ft to 80 ft, cantilever jibs and extensions from 24 ft to 50 ft are available. Other Rapier products to be shown are the 18/33 fork truck for loads of 18,000 lb at 33 in from the face of the forks and having forward- and backward-looking driving positions and masts for lift heights of 12 ft 6 in, 17 ft 6 in and 20 ft, and the Rapier electric shop truck crane for 1.35-ton loads, with separate motors for hoist, derrick and travel.

RAPID MAGNETIC, LTD.

Stand No. DD2

For quick handling of iron and steel will be exhibited electro lifting magnets 2 in to 76 in diameter. Also to be shown are electro-magnetic clutches, brakes, separators and extractors, permanent magnetic conveyors and elevators for materials handling, concave rolls, circular and rectangular magnetic chucks, and drum- and pulley-type separators.

THE RAWLPLUG CO., LTD.

Stand No. FF14

Besides showing and demonstrating their well-known range of devices for overcoming all kinds of fixing problems, this company will exhibit power tools for masonry drilling. Of the latter the most recently introduced is the R.P.2 two-speed dual-purpose electric drill. With its high speed of 1,200 r.p.m. it is suitable for general-purpose work, using standard twist drills up to $\frac{1}{8}$ in diameter. At a touch of a button the clutch speed can be reduced to 400 r.p.m. for use with Durium masonry drills.

REDLER CONVEYORS, LTD.

Stand No. F7

On this stand will be a full-size working installation of a 9-in Redler L-type elevator and 8-in tubular elevator, giving a 30-ft vertical lift. To be seen also are Redler and R.B. En Masse conveyor and elevator component parts, including

Rack-stacking U frames at the Birmingham Battery and Metal Co., Ltd. (Rack Engineering Co., Ltd.)





chain, and control devices for bin level and machine protection. On panels will be displayed conveyors, elevators, bin dischargers, vibratory conveyors, power shovel, Sinden thrower, Grainveyor mobile pneumatic elevator, Tidal bin-level control, Rocon rotational control unit, and skip hoists.

There will be panel displays of design and manufacturing facilities.

**RENDALE CONVEYORS, LTD.
RENDALE HANDLING, LTD.
RENDALE CRANES, LTD.
RENDALE ENGINEERING, LTD.**

Stand No. E6

The latest development in wagon marshalling under the trade name Dragon will be exhibited on this stand for the first time. A 24-in-wide troughed belt conveyor will also be seen inclined on a 30-ft-span bridge, supported on the floor at one end and on a junction tower at the other, and a motorized drum will be installed and operating at ground level for easy inspection. Also operating will be an overhead dual-directional Monorail chain conveyor constructed from standard Rendale units, and a length of sectional industrial flat belt conveyor of the makers' latest design.

RENOLD CHAINS, LTD.

Stand No. GG19

With a representative range of Renold conveyor chains and attachments will be displayed basic types of conveyors and elevators for which they are used. Precision roller chains, stock chain drives, Coventry Mark 5 malleable replacement chains, chain and flexible couplings, chainwheels and tools will also be shown. In addition, a power-driven model will demonstrate the application of Renold conveyor chains for elevators, and a second model will show the Renold sprag clutch for over-running, indexing and backstopping.

REVOL, LTD.

Stand No. JJ2

A display of Voler lubricants on this stand will include adhesive graphited lubricants for exposed gears, cables and chains, graphited lubricants for enclosed gears, graphited

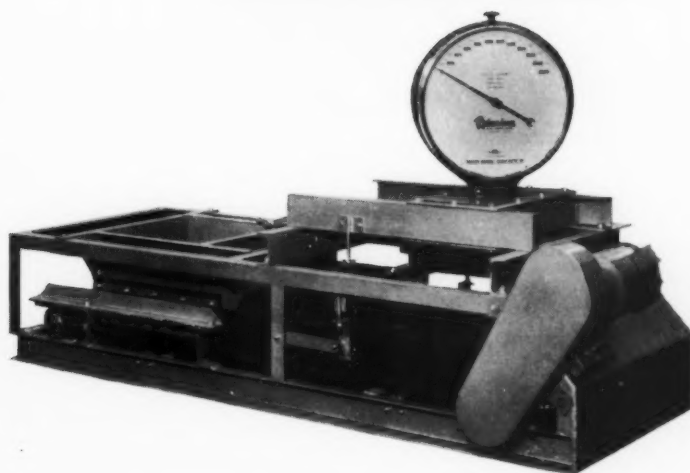
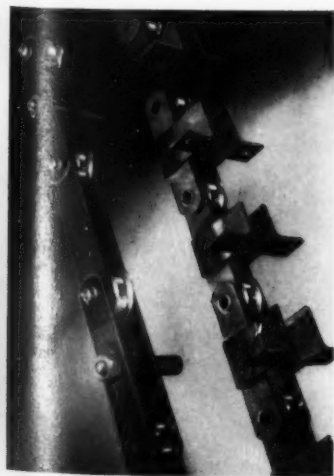
(Right) R.P.2. two-speed dual-purpose drill with keyless chuck and push-button control. (The Rawplug Co., Ltd.)

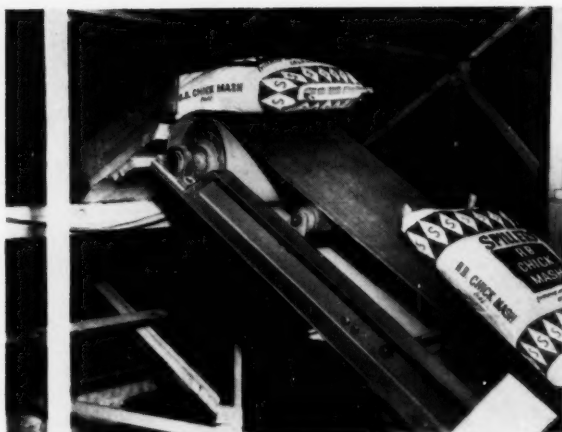
(Below left) Renold 12,000-lb breaking-load conveyor with welded attachments and 15,000-lb breaking-load chain with spigot pins. (Renold Chains, Ltd.)

(Below right) Constant-weight feeder machine for the controlled feed of single materials or blending and proportioning by multi-units. (Richardson Scale Co., Ltd.)



The new Rapier 1520 mobile crane with 80-ft strut jib. Lifting capacity is 4½ tons at 20 ft 6 in radius, propped, or 1½ tons at 23 ft radius, free on wheels. (Ransomes & Rapier, Ltd.)





Application of a Thorite motorized drum driving a belt conveyor. (Richards Structural Steel Co., Ltd.)

grease for plain, ball and roller bearings, Drylube for use where normal lubrication is impossible, thread lubricant to prevent screw thread corrosion and seizure and graphited release and penetrating fluid. Revol liquid for belt treatment will also be exhibited.

RICHARDSON SCALE CO., LTD.

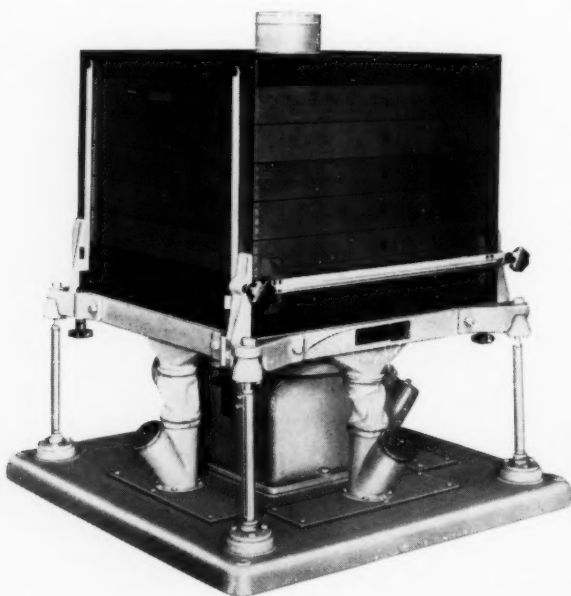
Stand No. B6

Exhibits on this stand will consist of a range of automatic scales for bagging or process blending and proportioning of bulk materials. They include a high-speed bagging scale, semi-automatic gross bagging machine, proportioning and blending machines, hopper scale with printing dial, valve bag packer-weigher and constant-weight feeder machines.

RICHARDS STRUCTURAL STEEL CO., LTD.

Stand No. CC1

To illustrate the special advantages of the Thorite motorized drum for conveyor, elevator and other drives, two examples will be shown driving small conveyors and emphasizing their ease of installation, compactness and safety. There will



also be displayed stationary and flameproof models and a sectioned drum to show the construction of the stator-rotor unit, epicyclic reduction gearing, bearings and other features. The drums are available with motors ranging from fractional to 20 h.p.

ROBALLO ENGINEERING CO., LTD.

Stand No. FF4

As sole licensees in the U.K. for Roballo ball and wire race ball bearings, this company will be showing at the exhibition for the first time. On their stand will be a pyramid of six sizes of a new type of ball-bearing turntable, the larger sizes suitable for trailers up to 6 tons payload and the smaller for pallet trucks, factory runabouts, etc. Sectioned models of the double-row type of ball-bearing slewing ring as used for cranes and excavators will also be on view.

THOMAS ROBINSON & SON, LTD.

Stand No. KK7

An actual working pneumatic conveying plant, electronically controlled and incorporating electrical weighing, will be the main exhibit on this company's stand. A Minisifter sifting machine with a dressing surface of 54 sq. ft. in a 4-sq. ft. floor area, and a robust large-capacity screening machine will also be displayed, together with gravity and chain conveyors.

ROLATRUC, LTD.

Stand No. DD1

This company are the sole distributors for the BT equipment and will be exhibiting them in this country for the first time. The range includes hand pallet trucks, electro-hydraulic stackers, hydraulic lift tables, crane forks and heavy-load movers.

ROPEWAYS, LTD.

Stand No. C6

A working model will be shown of a Monocable aerial ropeway, with angle station and automatic loading and discharging terminals, as supplied for the transportation of many kinds of material, such as ore, coal and bauxite.

Also on show will be a full-size detachable-grip Monocable Ropeway carrier for general merchandise and passengers; a display of steel wire ropes for haulages, excavators, cranes and general engineering purposes, coal cutters and disc shearers, and a display of full-size component parts for Aerial Ropeways.

(Left) A Minisifter sifting machine with sieving area of 54 sq. ft. in a 4-sq. ft. floor space. (Thomas Robinson & Son, Ltd.)

Exploded view of a three-point ball-bearing slewing ring as used for cranes and excavators. (Roballo Engineering Co., Ltd.)





Monocable ropeway in Jamaica conveying 200 tons of Bauxite per hour. (Ropeways, Ltd.)

ROSS ENGINEERS, LTD.

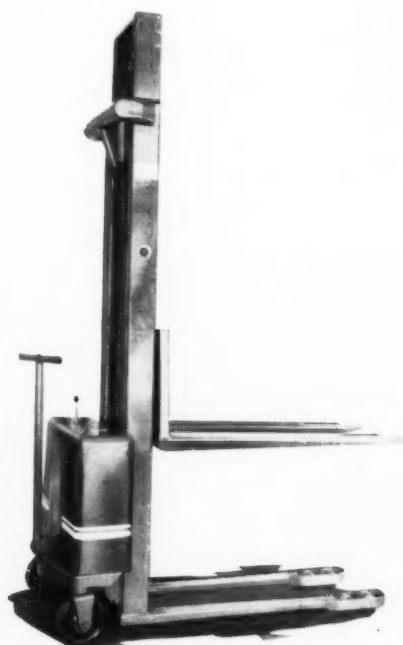
Stand No. LL15

A display of photographs will illustrate the handling equipment and plant manufactured by this company. On their stand also will be a model of a size 12 Ross patent chain feeder in operation in Australia where it controls the feed to an 84 in x 60-in jaw breaker.

(Below right) A Rownsons 12-in-wide-capacity U-belt carrying crushed glass at British glassworks. (Rownsons (Conveyors), Ltd.)

(Right) Large-mesh box pallet with three fixed sides, lid and locking gates. (Rubery Owen & Co., Ltd.)

(Below) The BT SV pedestrian-controlled stacker with electro-hydraulic lift. (Rolatruc, Ltd.)



ROWNSONS (CONVEYORS), LTD.

Stand No. F5

This company's exhibit will consist mainly of two working materials handling installations. One is a bulk-handling circuit, comprising a bucket elevator, screw conveyor, vibrating conveyor, vibrating screen, 24-in-wide-capacity U-belt conveyor and 12-in-wide-capacity U-belt conveyor. The other is a unit load-handling circuit, comprising a flat-top R.D. chain conveyor, power roller bend unit, inclined belt conveyor and spiral gravity chute. To be shown separately are an overhead conveyor, Nyloroll gravity conveyor and Nyloweel gravity conveyor.

RUBBER BY-PRODUCTS (WARWICKSHIRE), LTD.

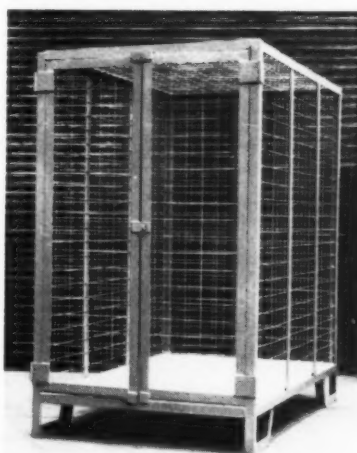
Stand No. MM1

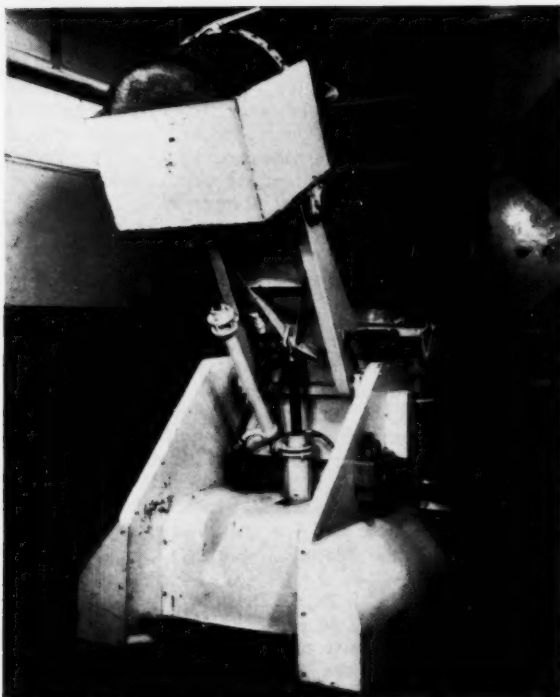
On this stand will be shown examples of axles, wheels and tyres, the axles made to specification with or without brakes and to any track measurement and with tyres and wheels to customers' requirements. Undergear equipment for trailers and machinery, covering axle loads of 2 cwt to 10 tons will also be displayed as well as trailer accessories, screw jacks, hand-brake levers, mudguards, drawbars, eye and ball-type hitches, wheel braces and the R.B.P. compensator Safer brake-operating mechanism.

RUBERY OWEN & CO., LTD.

Stand No. J15

From their very extensive range of storage and mechanical handling equipment the Industrial Storage Equipment Division of this company will be showing a few new special-purpose pallets and a special work-pan five-tiered rack with





Hydraulic 'Liftip' made by Russell Constructions, Ltd.

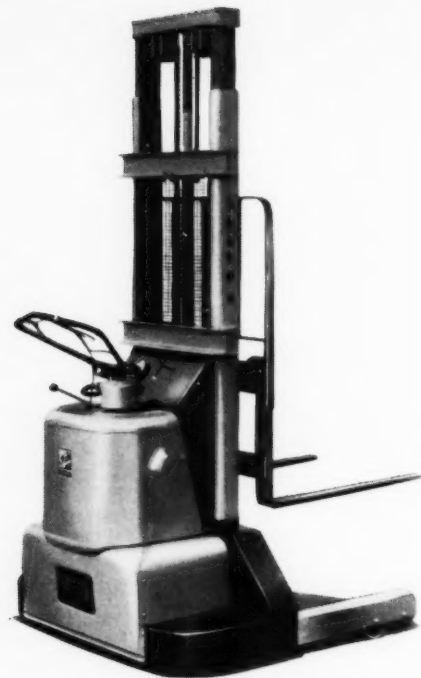
roller tracking and each tier taking 10 G.P.3 or 20 G.P.1 pans. The parent company of the Owen organization will exhibit a scale working model of the Macgregor-Comorain sliding wagon roof for which they are sole licencees in the U.K. Eliminating costly sheeting and completely pilfer-proof, this affords complete protection from the elements and is opened and closed in one minute by turning a handle.

RUSSELL CONSTRUCTIONS, LTD.

Stand No. B1

Among the principal exhibits on this stand will be vibratory screens; liquid separators; mobile elevators; micromizer mill; hydraulic sack and drum lifter used chiefly by chemical manufacturers and in the paint, mining, food and paper industries.

A ScotMec 'Big Joe' hydraulic fork lift truck at work in a press shop. Capacity: 1,000 and 1,500 lb lift to 4 ft 9 in, turning radius: 38 in. (Scottish Mechanical Light Industries, Ltd.)



The Sherpa Model 12 power traction stacker has a capacity of 15 cwt and elevation height of 10 ft. (Salisbury Precision Engineering, Ltd.)

SALISBURY PRECISION ENGINEERING, LTD.

Stand No. J5

These manufacturers will exhibit a range of hand and foot hydraulically operated lifting trucks up to 7 cwt capacity, battery-operated pedestrian-propelled stackers 7 to 10 cwt capacity lifting to heights up to 12 ft 4 in, and a battery propelled hydraulically operated fork lift truck of 15 cwt capacity lifting to a height of 10 ft.

Battery-operated tugs, stillages, platform trucks and lifting tables will also be shown.

A. SCHRADER'S SON

Stand No. LL3

A range of pneumatic equipment will be shown including: air cylinders, air valves of the foot, mechanically and pilot operated types, solenoid valves, flow control valves, spray and blow guns, quick-acting couplers, air ejection sets, presses, clamps and pressure regulators.

SCIENTIFIC AUTOMATION CO., LTD.

Stand No. FF9

Special machinery in relation to ash-handling plant, bin dischargers, bulk handling equipment, coal-handling equipment, conveyors, screens, elevators, skip hoists and pneumatic handling plant, in fact, mechanical handling in general. Drawings and photographs only on stand.

SCOTTISH MECHANICAL LIGHT INDUSTRIES, LTD.

Stand No. DD10

The chief exhibit on this stand will be two models of the 'Big Joe' hydraulic fork lift truck, one capable of lifting 1,000 lb and the other 1,500 lb. Other exhibits include the ScotMec 'Teleheater' system, the ScotMec 'Grain Blowers' and the O.G.A. grain conveyors.

SELF-CHANGING GEARS, LTD.

Stand No. DD4

This firm will be exhibiting the RV48A 4-speed epicyclic
(Continued on page 303)

PREVIEW OF EXHIBITS—continued

gearbox with overdrive as fitted to London's buses and to railcars, the V.S. automatic control for use with the 'Wilson' type epicyclic gearbox, the Schneider single-stage torque converter, a fluid friction clutch and the MF plate clutch and reduction gear unit.

SERVICE ENGINEERING CO. (NORTHAMPTON), LTD.

Stand No. P1

This firm will be exhibiting two 'Dumbo' loaders, with capacities of 3 and 7½ cwt, and designed for loading vehicles or for stacking purposes. A 'Vertiswing' tailboard loader of 10 cwt capacity will also be on view.

SHARP CONTROL GEAR, LTD.

Stand No. LL14

A section of the automatic control equipment supplied for the Zidpark automatic car park, and the completely new range of Sharp switchgear with examples of controller applications will be exhibited. Also on view will be traction control gear for diesel and diesel/hydraulic rail cars and locomotives as well as limit switches and A.C. and D.C. solenoids.

J. E. SHAY, LTD.

Stand No. A4

These manufacturers are displaying a range of hand trucks and stackers which they manufacture in association with Lansing Bagnall, Ltd. Other exhibits will be elevating platform trucks and a number of hydraulic and battery-operated hand stackers.

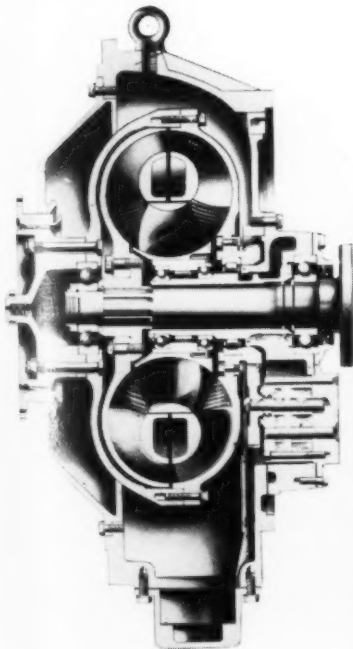
SHEEPBRIDGE EQUIPMENT, LTD.

Stand No. FF12

The exhibits on this stand will include: the Sheepbridge Kennedy Vibrating Screen, a section of a spiral chute for handling bulk materials, sections of a Sheepbridge conveyor system and an apron feeder, a rope haulage roller and examples of hand-operated hydraulic fork trucks.

Also on view will be a working model of a Sheepbridge gyratory crusher, the 'Twiflex' disc brake and shockless transmission units.

Section through a Schneider single-stage torque converter. (Self-Changing Gears, Ltd.)



SHELVOKE & DREWRY, LTD.

Stand No. G6

Three S.D. Freightlifter heavy-duty fork lift trucks will be exhibited: Model 72 with a capacity of 12,000 lb, Model 82 with a capacity of 18,000 lb at 24 in centres, and Model 100 with a capacity of 18,000 lb at 33 in centres.

SILVERTOWN RUBBER CO., LTD.

Stand No. MM6

On view will be fire-resistant conveyor belting for all underground services and surface installations where the presence of oil preclude rubber-covered belts, and a selection of industrial hoses and mouldings.

SIMON HANDLING ENGINEERS, LTD.

Stand No. H5

The principal exhibit will be an automatic proportioning unit which can proportion three granular materials by weight and one liquid by volume. Batches can consist of all four materials or of any permutation of the four. The formula for a batch or series of batches is set on a control panel either by feeding a punched card or by manipulation of dial switches.

H. C. SLINGSBY, LTD.

Stand No. L1

This firm will be exhibiting stackers, castors, ladders, drum trucks and stillages, pan and light machinery trucks, as well as machinery mover skates from ½ ton to 80 ton capacity, jacklift trucks, pallet trucks, and the 'Tugbar' truck and platforms.

R. SMITH (HORLEY), LTD.

Stand No. KK5

Displayed on this stand will be dumper trailers and industrial tractors.

S. SMITH & SONS (ENGLAND), LTD.

Stand No. LL13

This firm will be exhibiting magnetic particle couplings, combustion heating equipment and a full range of hydraulic equipment.

S.D. freightlifter, fitted with special 8 ft 9 in long fork extensions, unloading timber from railway trucks. (Shelvoke & Drewry, Ltd.)





THOS. SMITH & SONS (RODLEY), LTD.

Stand No. H10

Two lorry-mounted cranes will be shown: the Smith M.E.I., with a lifting capacity up to 22½ tons, and the Smith M.E. II, with a lifting capacity up to 10 tons. Both cranes are equipped with outriggers and screw jacks for 'blocked up' work and can be fitted with jibs of various lengths.

SPENBOROUGH ENGINEERING CO., LTD.

Stand No. LL10

A range of single- and double-acting hydraulic cylinders, control valves, hand pumps and a selection of pressure relief valves will be on view. In addition, rotary swash plate and plunger pumps of various capacities. All standard equipment is suitable for working pressures up to 2,000 p.s.i.

SPENCER (MELKSHAM), LTD.

Stand No. F13 and West Brompton Forecourt No. 3

Exhibits on this stand will include the new Spencer 'Grease packed for life' idlers, deep troughed idlers, a model of a quayside pneumatic grain elevator and a film of the bulk sugar handling plant for Tate & Lyle, Ltd.

In the forecourt the prototype Dunn Spencer bulk grain vehicle and the new 50-t.p.h. mobile pneumatic handling plant (if available) will be on view.

ST. CLARE ENGINEERING CO.

Stand No. D7a

Grab-o-Matic drum handling equipment and a fork truck attachment for handling drums will be shown on this stand.

STANHAY (ASHFORD), LTD.

Stand No. E9

Two machines will be demonstrated loading into a 10-ton hopper. These are: the Stanhay Shovelall, a hydraulically

This automatic proportioning unit, demonstrating the batching of solid materials to varying formulae, will be modified to show in addition the proportioning of a liquid ingredient as part of the same batch. (Simon Handling Engineers, Ltd.)



A Smith M.E.I. truck crane lifting capacity 22½ tons, working with a 100-ft boom. (Thomas Smith & Sons (Rodley), Ltd.)

operated loading shovel designed for many forms of bulk handling including coal and coke; and the Stanhay hydraulic hoist, an attachment for standard agricultural tractors with a jib that slews through 275 deg. A range of hydraulic grabs is available for the latter equipment.

E. G. STEELE & CO., LTD.

Stand No. JJ1

This firm will be exhibiting the 'Locopulsor' machine designed for shunting railway wagons in works sidings.

STEELS ENGINEERING PRODUCTS, LTD.

Stand No. G9 and West Brompton Forecourt No. 5

A representative selection of this firm's wide range of diesel-electric cranes will be on view. Amongst these will be three new models: the Coles 'Dominant', a 12½-ton crane on a wide chassis with a 50-ft jib and special equipment for an electromagnet; the Coles 'Ranger' mobile tower crane with a 20-ft tower and 50-ft jib, and the Coles 'Endurance', a 20-ton truck-mounted crane with a 100-ft jib and electrically powered stabilizing jacks operated from the driver's cab.

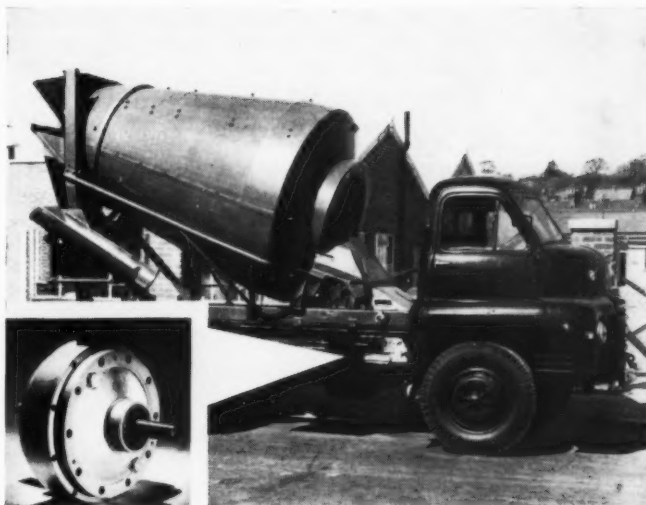
Four truck-mounted Coles cranes will also be on view in the Forecourt.

STEIN ATKINSON VICKERS HYDRAULICS, LTD.

Stand No. EE5

On display will be a selection of their range of British-made Vickers-Detroit oil hydraulic vane-type pumps and motors, control valves, cylinders and complete power units. A special feature will be a selection from the range of the new high performance pumps, and working demonstrations of a power-assisted steering system and an electro-hydraulic servo system.

Vickers-Detroit high-performance pumps in a range giving deliveries up to 100 g.p.m., and more and 2,000 p.s.i. duty at 2,000 r.p.m. (Stein Atkinson Vickers Hydraulics, Ltd.)



The Smith's magnetic coupling shown inset and fitted to this Winget cement mixing vehicle takes the strain from the agitator driving chain and smoothly accelerates the load from rest, thereby prolonging driving chain life. (S. Smith & Sons (England), Ltd.)

STEPHENS BELTING CO., LTD.

Stand No. EE11

'Miraclo', consisting of a nylon core to which is bonded chrome leather or other facing materials, has been used hitherto almost exclusively for power transmission.

On view will be full-size working exhibits and models illustrating new uses for 'Miraclo', including conveyor belts, slings, and wrapper belts.

In addition high-speed drives using 'Meteor', a sister product, will be exhibited.

E. STEPHENS & SON, LTD.

Stand No. HH6

This firm will be exhibiting metal and composite pallets and stillages, pallet feet, a pallet transporter, metal stack bins, racking, metal sections, trucks and a mechanical tug.

STEWART GILL & CO., LTD.

Stand No. J4A

On show will be two working exhibits of overhead conveyors, one being a rustless model requiring no lubrication, and a working exhibit of the Stewart Gill all-pneumatic automatic spraying unit.

Other exhibits will include, a heavy duty overhead



(Left) The Stanhay Shovelall loading coal direct from railway truck into hopper. (Stanhay (Ashford), Ltd.)

(Below)

Locopulsor shunting machine splitting a line of wagons. (E. G. Steele & Co., Ltd.)





conveyor, an overhead conveyor with a D-section track, a rustless gravity roller conveyor and a rustless belt conveyor of special interest in food processing.

S. S. STOTT, LTD.

Stand No. KK16

This firm will be exhibiting a portable belt-conveyor with a constant low loading point and hydraulic jacks for raising and lowering, a range of components including, seamless elevator buckets and screw conveyor blades and also wooden, metal and plastic patterns.

In addition there will be a photographic display of various complete materials handling installations.

STRACHAN AND HENSHAW, LTD.

Stand No. F3

The central feature on this stand will be a large sectioned model of one of the reactors for the Bradwell Nuclear Power Station, for which this firm are supplying the equipment for handling the uranium fuel and for charging and discharging the reactor. There will also be a full size working model showing the use of Hydrabrakes for controlling mine cars down track gradients, as well as models of wagon tippers and wagon marshalling equipment. Examples of large installations will be shown in photographs.

STRAPPINGS, LTD.

Stand No. MM8

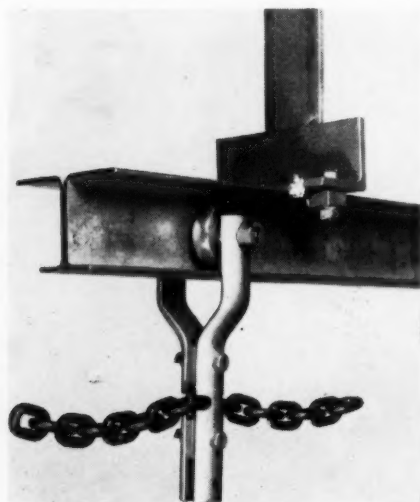
This firm will be exhibiting fully automatic, semi-automatic and hand operated wiring and banding machines, automatic string tying machines as well as pneumatic and hand operated stapling machines and palletization equipment.

RICHARD SUTCLIFFE, LTD.

Stand No. G3

A working conveyor circuit consisting of an electrically driven and a hydraulically driven conveyor will be shown. Included in this circuit, to demonstrate measurement and control with hydraulic and electronic equipment, is a short

The Stewart Gill TRC III overhead conveyor. (Stewart Gill & Co., Ltd.)



The Coles 'Dominant' mobile crane with wide chassis. This machine will lift a maximum of 12½ long tons at 10-ft radius with a 30-ft centre strut jib. (Steels Engineering Products, Ltd.)

cross conveyor, a chute and a batch weigh hopper. A working example of a new type of rope structure for field conveyors will also be on view. In addition a new multi-blade scraper, double chevron neoprene bonded driving drums, other conveyor components and one of a range of hydraulic winches will be shown.

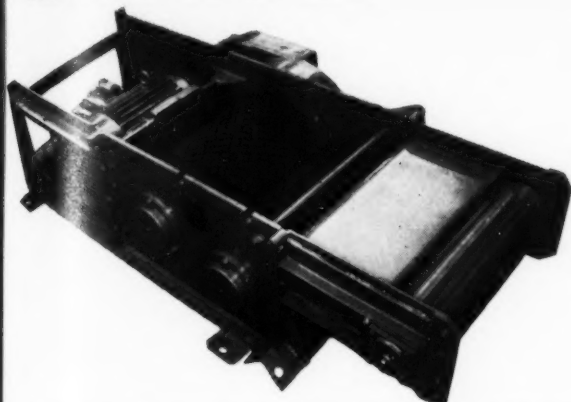
SUPER OIL SEALS AND GASKETS, LTD.

Stand No. HH27

In addition to 'Hyline' flexible hose fittings, 'Supertect' oil seals and packings, 'Romet' diaphragm and shaft seals for pumps, 'Fidrac' synthetic rubber mouldings, 'Aeroquip' flexible hose and detachable re-usable end fittings, the new 'Aeroquip' 5600 golden flow quick release self-sealing coupling with breakaway feature will be on show for the first time.

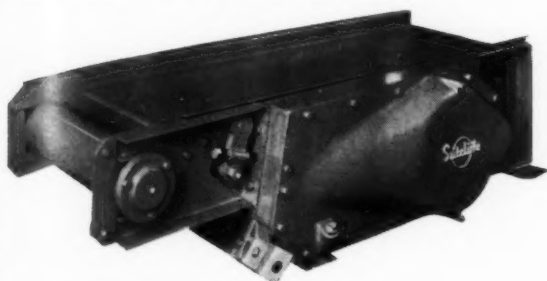
(Continued on page 307)

PREVIEW OF EXHIBITS—continued



Double chevron Neoprene bonded drums. Shown fitted in a 'Lioness' 25 h.p. tandem drive with top covers removed. (Richard Sutcliffe, Ltd.)

'Little David' 15 h.p. tandem drive. (Richard Sutcliffe, Ltd.)



SUPERBUILT PRODUCTS, LTD.

Stand No. JJ4

A wide range of hand trucks including a lightweight sack truck and a drum carrier will be exhibited. Also on view will be a new glass-fibre tank, a new bobbin isolator rack for the textile trade, and Harefield flexible rubber and P.V.C. doors.

T. & T. WORKS, LTD.

Stand No. G15

This firm will be showing the 'Vanguard' medium duty portable belt conveyor, a light duty portable package

conveyor, a heavy duty sack loader, a large feed hopper type heavy duty portable belt conveyor and also fixed conveyor and elevator elements.

F. TAYLOR & SONS (MANCHESTER), LTD.

Stand No. K6

Four from the Taylor Jumbo range of diesel-hydraulic self-propelled cranes will be exhibited: the series 46, which can lift up to 3 tons and slew through 220 deg; the series 48, a 3-ton capacity slewing grab crane specially designed for high performance in handling bulk materials; the series 42, a 4-ton crane with a 4-wheel drive; and series 66, a mobile truck-mounted slewing crane with a maximum lifting capacity of 2 tons and maximum legal road speed of 20 m.p.h.

TECHNIVISION, LTD.

Stand No. GG14B

Exhibits will include instruction books, handbooks, manuals, parts lists, technical illustrations, models, prototypes and design draughting.

TELEFLEX PRODUCTS, LTD.

Stand No. H2

This firm will be exhibiting an automatic conveyor system incorporating two drop sections, preselective carriers and belt and gravity roller conveyors.

Also on view will be three Teleflex linear actuators performing various functions.

THE THAMES PACKAGING EQUIPMENT CO.

Stand No. DD14

Two types of power-operated machines for stitching paper bags, jute sacks, etc., will be exhibited as well as a machine for sealing multi-wall paper sacks, polythene sacks and cellulose film bags.

Other exhibits include sack holders, a portable bag opener and a sample extractor capable of extracting powder, granular material or liquids at any given depth.

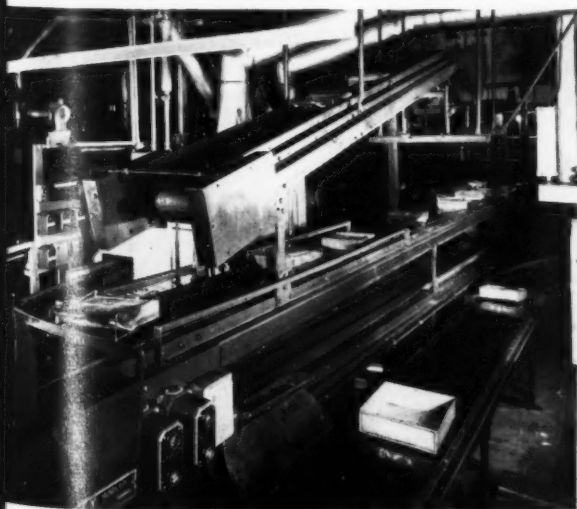
BERTRAM THOMAS (ENGINEERS), LTD.

Stand No. D7B

A display of industrial storage equipment, including a new design of pallet rack.

(Left) Teleflex belt conveyor scheme installed to carry tote pans of small parts for electrical assemblies. (Teleflex Products, Ltd.)

(Below) The Taylor Jumbo Series 66 truck-mounted slewing crane with a maximum lifting capacity of 2 tons and road speed of 20 m.p.h. (F. Taylor & Sons (Manchester), Ltd.)





Tubewrights' patented Markussen pallets supplied to British Railways, Eastern Region, to facilitate cargo handling on services between Harwich (Parkston Quay), The Hook of Holland, Antwerp and Rotterdam. (Tubewrights, Ltd.)

'Tiltracks' removable tray racks with adjustable dividers and honeycomb boxes, also raw material racks for bar, rod, tube, sheet and plate.

TILGATE SAWMILLS, LTD.

Stand No. CC8b

A range of timber stillages and pallets, also steel stillages and fabricated cages.

TIRFOR, LTD.

Stand No. BB1

Two 'Tirfor' pulling and lifting machines will be on view: one pulls 30 cwt and lifts 1 ton, the other pulls 5 tons and lifts 3 tons. The 'Skyscraper' scaffold winch incorporating numerous safety devices will also be exhibited.

TOWER CRANES, LTD.

West Brompton Forecourt No. 6.

This firm will be exhibiting a universal luffing jib building tower crane which can be used on a fixed base, as a climbing crane or as a rail-mounted crane. With a 65 ft 6 in jib this crane can lift 24½ cwt.

Also on view will be a semi-automatic grab bucket.

TUBEWRIGHTS, LTD.

Stand No. E10

The exhibits will include the Markussen pallet for cargo handling which has special features for safe overhead lifting and the 'resting' of pallets when empty, special types of post pallets, a special crate for handling metal containers, cradles for handling and storing tube and adjustable racking for storage.

TUNNY CRANES, LTD.

Stand No. C1

This firm will be exhibiting the 2-ton Tunny crane mounted on a standard commercial vehicle, thus illustrating one of the many ways in which the crane can be adapted.

TURNER BROTHERS ASBESTOS CO., LTD.

Stand No. GG6

A wide range of rubber and P.V.C. conveyor belts as well as the new 'Poly-V' power transmission belt, consisting of an endless belt with a series of parallel V-shaped ribs moulded around the inside face will be shown.

Other exhibits include elevator and whiplcord belting as well as power transmission V-belts.

UNIVERSAL CONVEYOR CO., LTD.

Stand No. F1

Two new items on show for the first time will be the 'Slik' flush-type roller conveyor and a lightweight stacker. Scale working models will illustrate the application of mechanical handling equipment to gravel handling plant, light-type flat belt layout and portable conveyors and stackers. A selection from the range of idlers and rollers manufactured by the company will also be exhibited.

UNITED DOMINIONS TRUST (COMMERCIAL), LTD.

Stand No. GG2

This stand consists of a banking office which is available for discussion of business and the financial services provided by the company.

VAC-U-LIFT (GREAT BRITAIN), LTD.

Stand No. P2

Demonstrations of the automatic handling by lifting through vacuum of a wide variety of flat and curved materials, steel plates, beams, pipes, glass, concrete, etc. The Power Pac includes a vacuum reservoir system and multiple-way solenoid valve ensuring positive gripping and a high safety factor. Multiples of pads, round or oblong, are available, designed to suit individual requirements.

VARATIO-STRATELINE GEARS, LTD.

Stand No. FF5

A range of 'Strateline' speed reducers motorized and

The Fischbein portable bag closer, weighs 10½ lb. (The Thames Packaging Equipment Co.)





Tunny crane unit mounted on Standard 4 Ford Thames Trader chassis, it has a capacity of 2 tons and jib can be slewed through 300 deg. (Tunny Cranes, Ltd.)

(Top right) A Vac-U-Lift fitted with three 16 in dia pads having a total rated lifting capacity of 3,000 lb. (Vac-U-Lift (G.B.), Ltd.)

Light flat belt stacker type LS made by Universal Conveyor Co., Ltd.



non-motorized at ratios up to 1,000,000:1. A range of 'Varatio' variable speed gearboxes of capacities from $\frac{1}{2}$ up to 70 h.p.

Introduced for the first time is the 'Anglgear' range of right-angled change of direction bevel units. These are being manufactured under licence and the range covers from $\frac{1}{2}$ to 5 h.p. at 1:1 and 2:1 ratios. Universal mounting with space and weight saving are among the features of these bevel units.

V.M.E. CONVEYOR & FURNACE CO., LTD.

Stand No. F4

Two entirely new items, a patent case elevator and a portable gravity roller conveyor are shown on this stand. For the patent case elevator, a high capacity equivalent to that on a much larger continuous elevator is claimed, also negligible maintenance and a unique carriage design allows pick-up through a simple grid.

The portable telescopic gravity roller conveyor is available in three or more sections according to requirements with width pitch and diameter of roller to suit the particular application.

Other standard V.M.E. items on show will be an overhead chain conveyor with pick-up pit, unit belt conveyors with various types of belt and all-purpose portable and variable height conveyor. There will be a completely closed handling system incorporating an air-operated transfer section power driven roller conveyor, an automatic elevator discharging on to a curved gravity roller section and a grip-face belt conveyor which completes the circuit.

THOS. W. WARD, LTD.

Stand No. D3

A complete conveying system comprising a timber-slat conveyor, cotton-web belt conveyor, taper roller conveyor and rolarail will be exhibited.

For powdered and granular materials there will be the 'Fluidlift' pneumatic handling system which operates on small quantities of air and large amounts of material under high pressure. The system will be shown as a closed circuit comprising twin storage hoppers with rotary lock feeders.

The 'Ensign' portable bulk piler features an all-welded tubular steel boom. A standard range is offered between



The Wrigley electric personnel carrier two seat version with rear toolbox and provision for gas bottles. (Wessex Industries (Poole), Ltd.)

16 and 36 ft drum centres and varying belt widths. Discharge heights are alternatively fixed or hydraulically adjustable.

F. E. WEATHERILL, LTD.

Stand No. E8

Two of the machines on show will be the recently introduced range of Weatherill hydraulic four-wheel drive loading shovels, the type L.62 powered by a Ruston and Hornsby 85-b.h.p. air-cooled engine and the type L.60 powered by a Ford 62-b.h.p. diesel. The type L.62 will incorporate patented automatic scoop levelling with preset controlled digging angle.

Two type S.2 hydraulic industrial loaders are also being shown, one a high tip version and the other fitted with a fork lift attachment to demonstrate its versatility. The well-known general-purpose hydraulic rear-wheel drive loading shovel type 12H which is available with torque converter transmission will be included.

WEBB CONVEYORS & AUTOMATION, LTD.

Stand No. KK6

Static sections of the Webb Towveyor and X458 chain and trolleys will be featured. There will be a working model of a constant weigh feeder, and a magnetic tape selector to preselect dropping or switching points on a conveyor.

WESSEX INDUSTRIES (POOLE), LTD.

Stand No. K5

As manufacturers of 'Wrigley' industrial trucks, this company will show trucks, trolleys and trailers including their 10-ton electric tractor, electric fork lift trucks, electric and petrol works trucks, tugs, hydraulic tippers, stillage trucks and pedestrian controlled trucks of from 10 cwt to 4 ton capacity. There will also be a range of four-wheel heavy-duty industrial trailers of capacities 30 cwt to 30 ton.

A special feature will be made of the new 'Wrigley' electric works personnel and maintenance carrier model R4. This is available as either a 2 or 4 seater and is suitable for conveying visiting V.I.P.'s, management movement, maintenance and breakdown staff, inspection, security check and for many other occasions when personnel require speedy transportation.

WEST DOCK TIMBER CO., LTD.

Stand No. MM2

Main exhibits will be four-way entry pallets (Patent 608874) and two-way entry pallets suited to various industries. There will also be stillages and jac-trucks for storage or factory use.

WEST'S GROUP OF INDUSTRIES

Stand No. KK1

West's (Manchester), Ltd., will be showing a 3 ft x 10 ft West-Flämrich Ultra-Resonance screen, a 4 ft x 10 ft high-intensity vibrating screen for screening crushed stone, and a 1 x 3 ft 6-in pilot Wemco-Remer jig.

A new self-lubricating band conveyor troughing idler, the 'Camberoller', is shown by West's Gas Improvement Co., Ltd., and by Tully Engineering Co., Ltd., actuators at work under electrical control.

WESTINGHOUSE BRAKE & SIGNAL CO., LTD.

Stand No. CC7

A wide range of pneumatic control equipment will be shown, in particular a working lay-out of typical control equipment for a modern excavator, together with a demonstration panel of positioning equipment, remotely controlled valves and examples from a wide range of double-acting air cylinders.

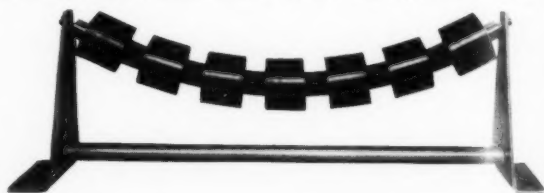
A colour film with commentary showing applications of pneumatic control as applied to ships, excavators, rail cars, aircraft runway sweepers and various industrial purposes will also be shown.

WESTON WORKS (BIRMINGHAM), LTD.

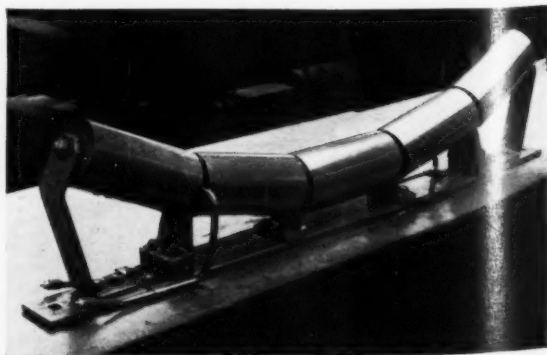
Stand No. EE10

A range of hydraulic rams will be on display with cylinder bores from 1½ to 6 in. These rams will be of single and double acting types and will be representative of a standard range of units. Alternative types of end fittings will be displayed and also a selection of selector valves that can be adapted to single acting, double acting and series application. Pump units and relief valves will be included.

The Camberoller self lubricating band conveyor troughing idler of a semi-rigid, impact resistant nature. (West's Gas Improvement Co., Ltd.)



(Below) Westwood Dawes heavy-duty five-roll troughing idler set for a 48 in wide belt





Tuglift semi live stillage fitted with a model K stabilized tug bar lift. (Willmot Trucks, Ltd.)

WESTWOOD DAWES & CO., LTD.

Stand No. FF6

A comprehensive range of belt conveyor idlers of both the self-lubricating and manual lubricating type will be on show. Included in the range are standard troughing and return idlers, rubber disc impact and return idlers, and self-aligning idlers. There will also be a selection of fabricated steel pulleys for belt conveyors and an example of heavy-duty gravity roller conveyors.

WHARTON ENGINEERS (ELSTREE), LTD.

Stand No. HH14

A working section of a W.S.13 conveyor showing operation round two horizontal bends of 4 ft 6 in radii and elevating without flights at 43 deg will be among the exhibits. There will also be equipment including sectioned components covering the full range of W.S. conveyors and conveyor-elevators. The development of W.S. elevators to handle sticky materials at 80 deg elevation will be demonstrated.

WHEWAY WATSON & McLEAN, LTD.

Stand No. FF11

Exhibits on this stand will include heavy slings, heavy chain up to 2½ in dia material, a large ramshorn hook, Monel and stainless-steel chain.

A film entitled 'Modern Chain Making' will also be shown.

WHITE CHILD & BENEY, LTD.

Stand No. KK17

Boxes, bins, cases, tanks, trucks and trolleys for handling processings, storage and transit made from 'Super Benesto' laminated fibreboard, polythene and glass fibre. There will also be a display of containers moulded from resin-bonded wood chips by the 'Collipress' process.

WILLMOT TRUCKS, LTD., TUGLIFT, LTD.

Stand No. E12

Willmot trucks on this stand include representative industrial and hand trucks. Also on show will be the Tuglift semi-live stillage trucks, a display of castors, wheels, and truck com-

ponents, and miniature scale models of the firm's range of general-purpose trucks and trolleys. There will also be examples of forklift 'Stacabins'.

WINGET, LTD.

Stand No. K1

The main working exhibit on this stand consists of four different vibratory units forming a rectangle passing material. These units consist of a heavy duty vibrating feeder, pipe conveyor, open trough vibrating conveyor and a vibratory screening transporter.

There will also be on show the recently developed hydraulic external vibrator and working units of a typical vibrating trough feeder and spiral bowl feeder.

WINGROVE & ROGERS, LTD.

Stand No. L4

Seven different types of B.E.V. electric industrial trucks. Shown for the first time at the exhibition is the 30-cwt capacity D.H. 33 high lift fork truck which is a direct development of the 1- and 2-ton capacity models in the D.H. series. It is of robust construction and a choice of solid cushion or pneumatic tyres on large diameter well-spaced wheels makes the vehicle adaptable for all surface conditions. This truck is being shown fitted with a bale clamp which is easily interchangeable for standard lifting forks.

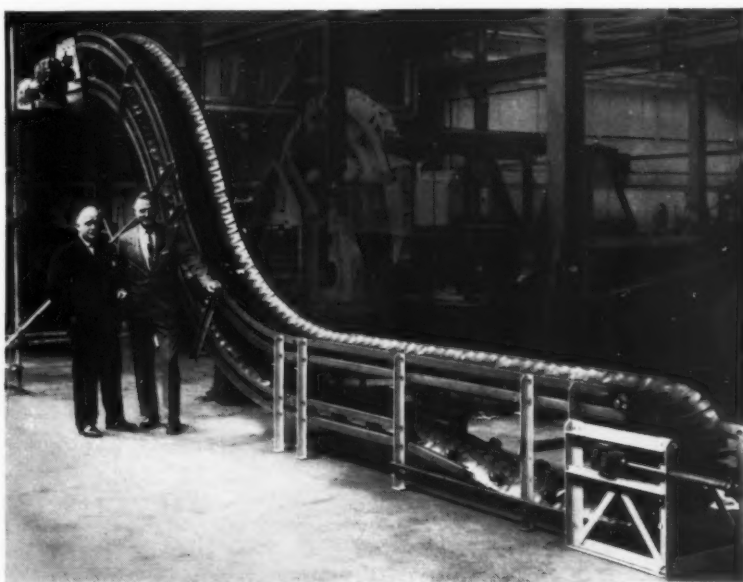
Among the other trucks to be shown is an elevated platform truck type E.116, a 'Leader' elevating platform truck type JE.4011, high lift fork trucks, types RH.11, RH.22 and DH.45, and a fixed platform truck type S.717.

ALFRED WISEMAN & CO., LTD.

Stand No. KK11

Fan cooled, worm gear units mounted on bedplates with

W.S.13 type conveyor supplied to an aluminium smelting company in Canada. The conveyor with the exception of the head unit is immersed in a tank of water into which is dropped molten aluminium which forms into shot and is cooled and then elevated during transit on the conveyor. (Wharton Engineers (Elstree), Ltd.)





Weatherill hydraulic four wheel drive loading shovel type L.60 powered by a Ford diesel engine

electric motors and couplings, totally enclosed single helical and double reduction units and double worm reduction gear units are just a few of the extensive range of gear units and associated equipment to be seen on this stand. Electric traction resilient gear wheels, gear-type couplings and flexible couplings will be included.

WITLOR, LTD.

Stand No. P3

The main feature on this stand will be the Arley tractor-mounted crane. This is an attachment coupled to the fore-end of the Fordson Power Major Tractor and lifts loads up to 15 cwt to a height of 24 ft. Fully mobile and steered with the tractor using the tractor hydraulic system, it can be coupled to or uncoupled from the tractor in a few minutes.

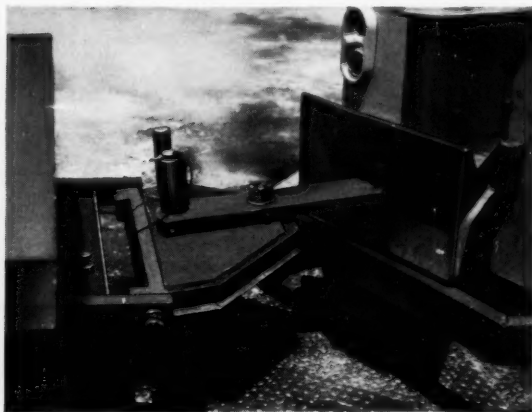
HUGH WOOD & CO., LTD.

Stand No. G5

A working conveyor will be on this stand, fitted with the

(Right) The new Yale & Towne KD.51 diesel fork lift truck of 4,000 lb capacity

The new Autolink trailer tractor coupling made by W. C. Youngman, Ltd.



'Huwood' emergency trip wire system and belt protection switch, the use of which is expanding through industry where safety is paramount. Hugh Wood & Co. will also be showing examples of their heavy duty conveyor equipment including drive heads, tail ends, impact idlers, conveyor intermediate sections and self-lubricating oil-filled rollers for ore handling, quarry work, etc.

THE YALE & TOWNE MANUFACTURING CO.

Stand No. G12

Shown for the first time will be the Yale KD51 diesel fork truck of 4,000 lb capacity. This truck has a laden lifting speed of 57 ft/min and is fitted with a Perkins P4 diesel engine.

There will also be a new 2,500-lb capacity hydraulic hand pallet truck and a K.51 electric fork truck of 4,000 lb capacity which is representative of the Yale range of electric power trucks.

Other exhibits will include a display of hydraulic attachments for fork lift trucks, the Blue Streak and Zephyr hand trucks and a range of Yale hoists and Pul-lifts.

W. C. YOUNGMAN, LTD.

Stand No. E3

Several entirely new items of equipment will be seen on this stand. The Slalom trailer/truck and a new prime mover will demonstrate together outstanding manoeuvrability over tortuous routes. The Youngman Autolink, a new conception of tractor/trailer coupling will show how the prime mover driver can operate practically all day without leaving the cab.

Pallet converters and other aids to palletization will be included in this exhibit.

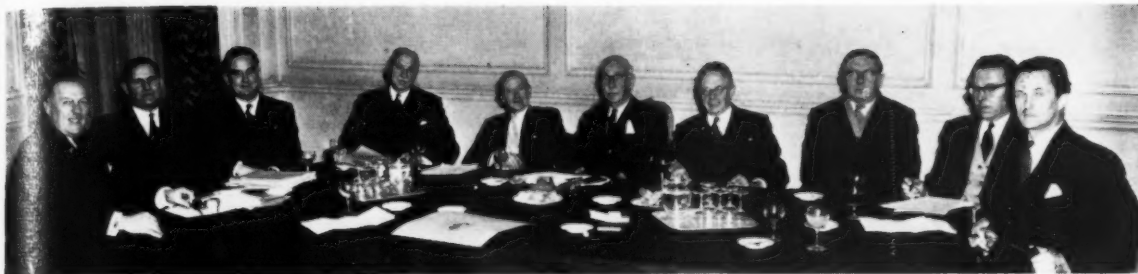
ZINC ALLOY RUST PROOFING CO., LTD.

Stand No. NN1

This stand forms a technical information bureau where visitors can obtain particulars, cost and details of the uses to which the Sheradizing and Sherabrite processes can be put in the mechanical handling industry. Although the company do not manufacture components, examples in iron and steel will be shown rust-proofed by the Sheradizing and Sherabrite processes.



MECHANICAL HANDLING JOINT INDUSTRIES COMMITTEE



Tributes paid to Mr. C. E. Wallis and Mr. L. T. Newell on their pending retirement

FOR some years past C. E. Wallis, Chairman and Managing Director of the Associated Iliffe Press, and L. T. Newell, Director of the same company, accompanied by H. A. Collman, Manager of the Mechanical Handling Exhibition, and P. J. Joynes, Editor of *Mechanical Handling*, have been meeting representatives of the supporting Trade Associations to discuss various points in the running of the Mechanical Handling Exhibition, organized by this journal. The last of these meetings, held towards the end of March, was something of an historic occasion. Mr. Wallis retires at the end of June and so does Mr. Newell. At this meeting, which was followed by a lunch, Mr. Collman paid a tribute to Mr. Wallis on this and he was followed by Mr. D. Cherry Paterson. Mr. Wallis replied and so did Mr. Newell.

(Right) H. A. Collman, Manager, Mechanical Handling Exhibition, proposing the health of Mr. C. E. Wallis and Mr. L. T. Newell

(Below, reading from left to right) D. Cherry Paterson (Mechanical Handling Engineers Association and Chairman of M.H.J.I.C.) seconding Mr. Collman's remarks

C. E. Wallis (Chairman and Managing Director of the Associated Iliffe Press) replying

L. T. Newell, Director of the Associated Iliffe Press, followed Mr. Wallis in thanking the meeting for their remarks

Picture shows those who attended the meeting between the Mechanical Handling Joint Industries Committee and representatives of the organizers ('Mechanical Handling'). Left to right: B. Butters (Association of Crane Makers); L. Tichelly (Lifting Tackle Association); J. R. Sharp (British Industrial Truck Association); D. Cherry Paterson (Mechanical Handling Engineers Association); H. A. Collman (Exhibition Manager); C. E. Wallis (Chairman and Managing Director of Associated Iliffe Press); L. T. Newell (Director of the same company); P. J. Joynes (Editor, 'Mechanical Handling'); E. McLeay and H. Peat (Peat, Marwick Mitchell & Co., Secretaries to the M.H.J.I.C.)

Mr. H. F. Shields, representing the Aerial Ropeway Association, is also on the Committee but unfortunately he was abroad at the time when this meeting was held



CONTINUOUS PROCESS IN THE PRODUCTION OF GLASS-FIBRE MAT

by H. G. Vallings, A.M.I.Mech.E.

GLASS fibres were used about 3,000 years ago in the making of glass vessels. A metal rod was dipped into molten glass and withdrawn with glass sticking to it. The action of pulling out the rod formed a fibre which, with careful heating, was wrapped in a spiral round a clay former. After reheating until the spirals melted into a continuous glaze the clay was scooped out leaving a hollow glass vessel. This method was used for at least 1,500 years until the advent of glass blowing in the first century B.C.

Nineteen hundred years were to elapse before any extensive application could be found for glass fibres; but now many thousands of tons are produced annually and used in the making of thermal insulation for buildings, ships, aircraft, etc., as well as for sound absorption and the reinforcement of plastics.

At their works at St. Helens, Fibreglass, Ltd., are in the process of expanding their manufacturing capacity and have recently installed a new plant for the production of glass-fibre mats or slabs. This is known as the Crown Plant, and continuous forward movement from the raw materials to the finished product has been achieved. The manufacturing process can be conveniently divided into the making of glass-fibres, forming and curing the mat and the cutting operations to make slabs or rolls.

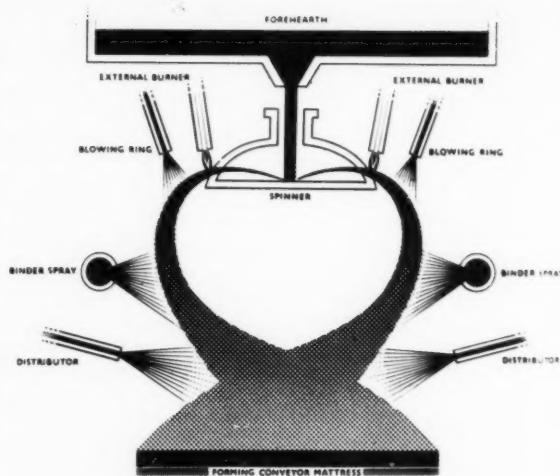


Fig. 2. The fibre-making process (Diagram by Fibreglass, Ltd.)

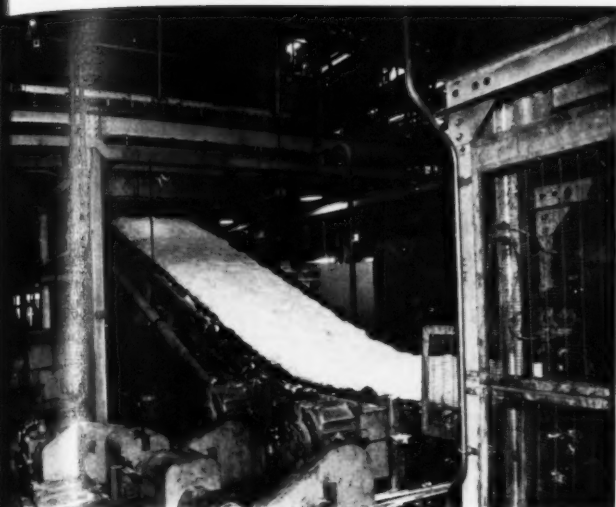
Fig. 1. Silica sand is handled from stockpiles by loading shovels and belt conveyors en route to the factory



Production of Glass-Fibres

The 'frit' or raw material consisting of silica sand, lime and soda is delivered by a bucket elevator to a hopper equipped with a rotary feeder so as to give a continuous supply of frit to an oil-fired furnace. Both the elevator and the feeder are operated by electric motors through variable speed hydraulic drives. The molten glass flows through a canal into the forehearth (a gas-fired furnace) where the temperature is closely controlled to ensure that the viscosity of the glass is such that it will flow through three orifices of about $\frac{1}{8}$ in dia at the bottom of this furnace. The glass from each orifice falls into a spinner, Fig. 2, and centrifugal force throws it through perforations in the sides of the spinner where it is formed into fibres of approximately 0.00025 in dia by the application of further heat and the frictional pull of a series of compressed air jets. As the fibres fall they are sprayed with a binder or resin, and by means of an additional set of compressed air jets they are broken up into random lengths from 2 to 3 in and directed downwards on to the forming belt conveyor, Fig. 4.

The successful formation of the glass fibres depends upon maintaining not only the correct temperature but also the correct head above the orifices. This level is maintained to



TOP RIGHT:
Fig. 3. Glass-fibres in the making

ABOVE:
Fig. 4. The forming conveyor

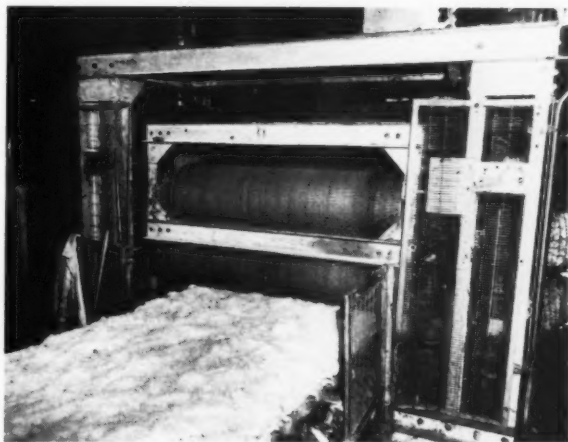
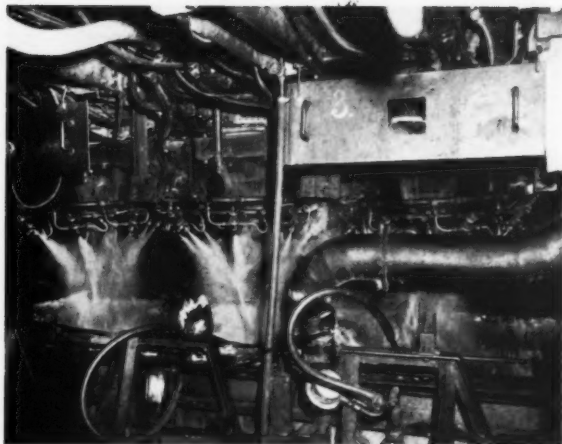
within $\pm \frac{1}{32}$ in with the aid of an air-probe controller. The probe consists of two air jets one of which is several inches above the molten glass while the other is much closer so that the glass constitutes a restriction of air flow to a greater or lesser extent depending on the liquid level. This restriction causes a pressure differential between the two jets which is reflected in the movement of a diaphragm. This movement is used to alter the speed ratio of the hydraulic drives to the bucket elevator and to the rotary feeder, thus controlling the supply of frit to the furnace.

Forming and Curing the Mat

The receiving hopper or hood at the point where the fibres are blown downwards on to the forming belt conveyor has movable sides so that the width of the mat can be varied from 36 to 48 in. This conveyor which has a steel-wire-mesh belt about 4 ft 8 in wide carries the mat down a slope to a point where a contra-rotating roller peels the mat off the end of the belt and deposits it on to a chain-driven rotating roller conveyor, Fig. 5. The moving mat is fed through a curing oven between two steel wire-mesh belts, Fig. 6. The height of the upper belt can be adjusted by means of ten electrically-operated screw jacks so that during the passage of the mat through the 52 ft of the curing oven it is pressed between the belts to its final thickness, $\frac{1}{2}$ to $4\frac{1}{2}$ in.

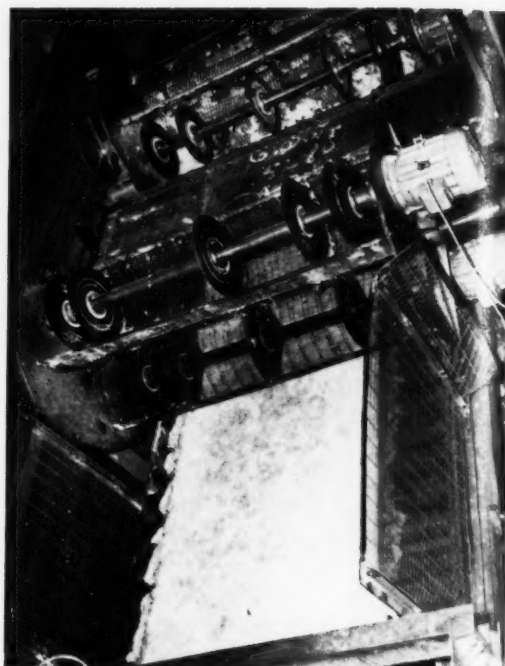
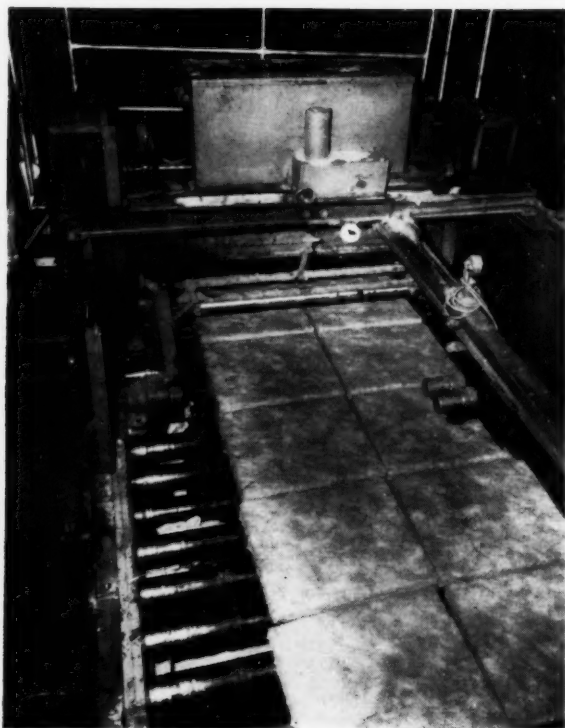
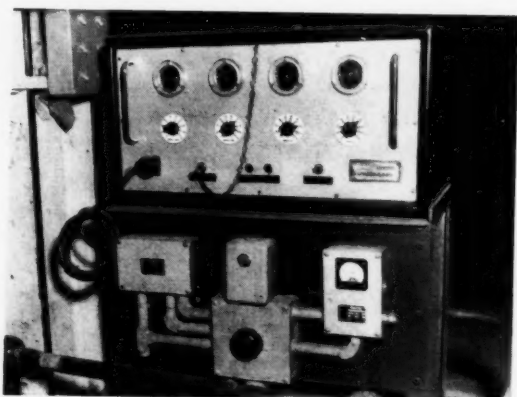
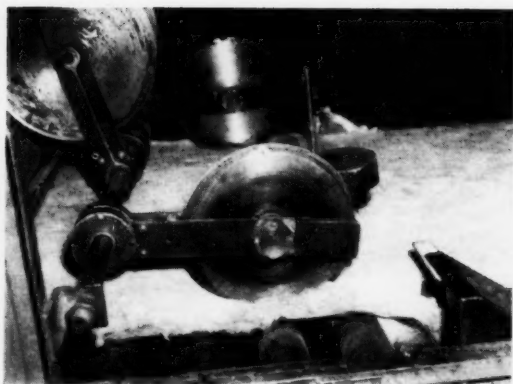
Cutting and Rolling the Mat

After leaving the oven the mat moves forward on a chain-driven rotating roller conveyor about 100 ft long for the remaining operations; but before cutting commences, it is cooled by air suction ducts underneath the conveyor. When the product is required in the form of slabs of widths less than that of the mat, the latter is cut into strips by power-driven abrasive wheels. Four sets of these cutting wheels are arranged on pivoting arms so that any one set can be quickly brought into action, and each set can be adjusted to cut strips of different widths so that no time need be lost when production programmes are changed, Fig. 7. The edges of the mat are trimmed by non-driven steel cutting wheels, Fig. 8. The strips are cut into slabs by a



CENTRE ABOVE:
Fig. 5. Contra-rotating roller peels the mat off the wire-mesh belt

BELOW:
Fig. 6. The mat entering the curing oven between two wire-mesh belts



ABOVE

Fig. 7. Cutting the mat into strips. One set of saws in action, three with different spacings in reserve

ABOVE, LEFT

Fig. 8. Trimming edges of mat

LEFT, CENTRE

Fig. 9. Electronic timing unit controls length of strip cut by guillotine

LEFT, BELOW

Fig. 10. Saw-tooth guillotine cuts strips into slabs

saw-tooth type guillotine controlled by an electronic timing unit which can be set to cut any length from 9 in to 75 ft. Figs. 9 and 10. The slabs which are normally no more than 4 ft in length and seldom weigh more than 2 lb move forward on to a temporary platform placed over the conveyor rollers and are loaded by hand on to stillages, Fig. 11. The loaded stillages are picked up by manually-operated stillage trucks and wheeled to the packing department.

Mats up to 2 in thick and 30 to 60 ft long are formed into rolls by an air-operated machine at the end of the conveyor. The guillotine cuts the mat to length but, when cutting is necessary to produce rolls of smaller width, steel cutting discs, similar to the disc shown in Fig. 8 are used instead of the abrasive wheels. The steel discs do not cut completely through the mat but leave just sufficient material so that the strips do not separate while being conveyed to the rolling machine. After rolling, the strips are easily separated by hand.

In the rolling machine, Figs. 12 and 13, the mat is fed to the underside of a rotating shaft with four deep flutes and is kept in engagement by a pressure plate, pivoted horizontally at the termination of the conveyor, and also by a cage which exerts through a set of rollers a steady pressure on the roll as it is formed. As soon as the roll is formed the shaft

is stopped, the cage is opened and the roll is pushed off the shaft by means of a travelling arm. The rolls are packed in paper bags and loaded by hand on to trailers which are towed to the storage or despatch departments by 3-wheeled battery-operated tugs, Fig. 14.

Drive to Conveyors

The thickness of the glass-fibre mat formed beneath the spinners depends upon the speed of the forming belt and, in consequence, the speed of the other conveyors in the production line. All these conveyors are driven by a 50 h.p. electric motor through an electro-magnetic variable-speed coupling and a 3-speed gear box giving a wide variation in speed up to 200 ft/min. Certain sections of the conveyor are driven at a slightly higher speed than their predecessors so as to maintain a slight tension in the mat and also to create spaces between pieces cut by the guillotine.

Equipment Recently Installed

Conveyors, W. & C. Pantin, Ltd.; variable-speed gears, Carter Gears, Ltd.; electro-magnetic variable-speed drives, Heenan & Froude, Ltd.; multi-speed gearboxes and reduction gear boxes, Crofts (Engineers), Ltd.; air-operated level control equipment, General Glass Equipment, Ltd.; electronic timing unit, Londex, Ltd.; three-wheeled electric tugs and trailers, Wessex Industries (Poole), Ltd.; air motors, The Globe Pneumatic Engineering Co., Ltd.; hand stillage trucks, J. Collis & Sons, Ltd.; pneumatic cylinders and valve equipment, Martonair, Ltd.; loading shovels, Muir-Hill 1 cu. yd. capacity, E. Boydell & Co., Ltd.; and belt conveyors (at stockpiles), Crone & Taylor, Ltd.



ABOVE, RIGHT
Fig. 11. Slabs loaded on to stillages

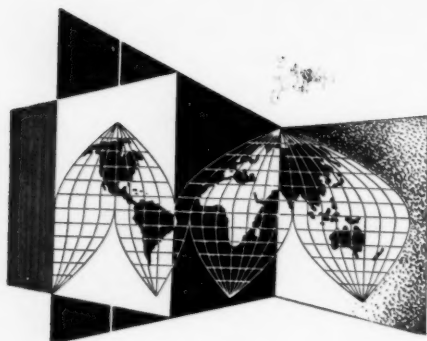
RIGHT
Fig. 12. The mat-rolling machine. The cage on the right-hand side surrounds the roll while it is being formed



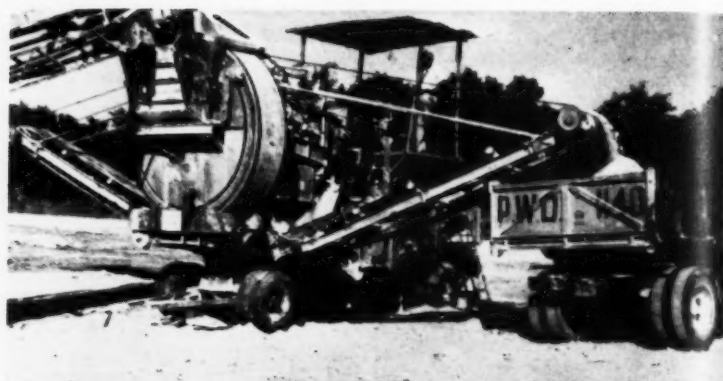
BELOW, RIGHT
Fig. 13. A travelling arm ejects the finished roll

BELOW
Fig. 14. Bags containing rolled mat in transit to despatch department



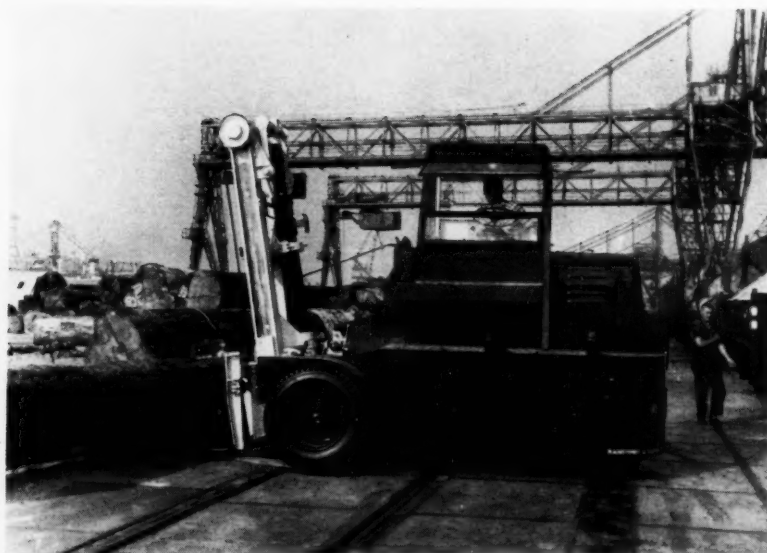


BRITISH MECHANICAL HANDLING EQUIPMENT OVERSEAS



BRITISH HONDURAS. This Crush-Ranger 1106 mobile crushing outfit made by Frederick Parker, Ltd., is working for the Public Works Department of British Honduras at Corozal, close to the Mexican border

← **NIGERIA.** Handling pallet loads of cases of beer is this Conveyancer TC.6 diesel/petrol powered fork truck. With a capacity of 6,000 lb at 20 in load centre, it is operated by the Nigerian Ports Authority



British mechanical handling equipment is to be found working in most countries of the world. Each year since the end of the war, sales to overseas customers have increased. Buyers from overseas flock to the Mechanical Handling Exhibitions (organized by this journal) held every two years in London, so great is the regard for British equipment. A preview of exhibits to be seen at this year's Exhibition will be found on page 262.

In this feature, to be continued each month, we shall bring you brief details and illustrations of such British equipment designed for, or at work in, countries abroad.

Overseas readers requiring information on any type of British mechanical handling equipment, or names of manufacturers' agents or representatives in a particular country, are invited to write to the Editor.

← **HOLLAND.** Picking up a log with a Rapier Super fork truck at Rotterdam



Britische Förder- und Hebezeuge befinden sich in den meisten Ländern der Erde im Einsatz. Seit Kriegsende steigern sich die Verkaufsziffern an ausländische Abnehmer von Jahr zu Jahr. Ein so grosses Ansehen geniessen Geräte britischer Herstellung, dass ausländische Käufer anlässlich der alle zwei Jahre von dieser Zeitschrift in London veranstalteten Förder- und hebetechnischen Ausstellungen in Strömen herbeikommen.

In dieser monatlich fortgesetzten Artikelserie werden wir kurzgefasste Einzelheiten und Abbildungen britischer Geräte bringen, welche für das Ausland konstruiert bzw. dort bereits im Einsatz sind.

Ausländische Leser, welche an Auskünften über britische Förder- und Hebezeuge gleichwelcher Art, bzw. an Namen und Adressen der entsprechenden Hersteller, Agenten und Vertreter in irgend einem gegebenen Lande interessiert sind, werden gebeten, sich schriftlich an die Redaktion zu wenden.



HOLLAND. At the Meppel factory of NV Rijnwielindustria, a leading bicycle manufacturer in the Netherlands, the Dutch affiliate of Teleflex Products, Ltd., Teleflex NV, has installed nearly 100 ft of D.8-type chain conveyor. Special outrigger pivoting arms carry bicycle frames and other parts through nine separate dipping vats and finally to a stoving oven.

ISRAEL. A Yale lift truck is used to add a giant steel cylinder for a water pipeline to those already completed at the Yuval Gad plant in Ashkelon. The cylinders are steel cores for the Jordan-Negev pipeline, one of the key links in Israel's national water project now under construction. The pipeline will be used to reclaim large portions of the desert by carrying water from the Jordan river at a point north of the Sea of Galilee to a reservoir some 100 miles south. (Above, left)



← **CANADA.** Coles crane, model S2310, equipped with a fly jib handling heavy dies at the Montreal plant of Canadair, Ltd. This crane is used mostly for precision handling duties and plant maintenance

En la mayoría de los países del mundo puede hallarse funcionando equipo británico de manejo mecánico. Desde que terminó la guerra la venta de tal equipo a los compradores de ultramar ha venido aumentando sin cesar. Tan considerable es la estima en que se el equipo de fabricación británica en todo el mundo, que son numerosísimos los compradores extranjeros que se personan en Londres para visitar la Exposición de Manejo Mecánico (organizada por esta Revista) que se celebra cada dos años.

En esta sección, que aparecerá todos los meses, les ofreceremos ligeros detalles e ilustraciones de tal equipo británico diseñado para países extranjeros o funcionando en ellos.

Los lectores de ultramar que requieran información sobre cualquier equipo británico de manejo mecánico, o el nombre del agente o representante de los fabricantes en cualquier país en particular pueden escribir pidiéndola al Director de esta Revista.

Le matériel britannique de manutention mécanique se trouve en service dans la plupart des pays du monde. Chaque année, depuis la fin de la guerre, le chiffre des ventes à la clientèle des pays d'outremer s'est accru. Des acheteurs de tous les pays du monde accourent aux Expositions de la Manutention Mécanique (organisées par notre publication), qui ont lieu tous les deux ans à Londres. Si haute est l'estime que l'on a pour le matériel de fabrication anglaise.

Dans cet article, à suivre tous le mois, nous vous présenterons des détails succincts et des illustrations du matériel anglais spécialement étudié pour et mis en service dans les pays étrangers.

Nous invitons cordialement les lecteurs de l'étranger à écrire à notre Rédacteur en Chef (The Editor) pour tous renseignements concernant un type quelconque de matériel anglais de manutention mécanique, ou les noms de fabricants, agents distributeurs ou représentants dans un pays donné.

PRESS CONFERENCE ON MECHANICAL HANDLING EXHIBITION



**And showing of film
'Accent on Mechanical Handling'**

ABOVE

Members of the Panel: (left to right) R. G. Winton (Lansing Bagnall, Ltd.); D. G. Anderson (Rownsons (Conveyors), Ltd.); George Downie (Unilever, Ltd.); H. A. Collman (Exhibition Manager); R. L. E. Keates (Steels Engineering Products, Ltd.); and Captain E. O. S. Price (Richard Sutcliffe, Ltd.)



LEFT

Recently over 300 representatives from the Trade, Technical and Provincial Press were invited to the Café Royal to see the film 'Accent on Mechanical Handling' a revised film on the Mechanical Handling Exhibition. Picture shows some of those that attended. After the showing of the film a panel of representatives from different sections of mechanical handling answered questions. This conference was arranged by Derek Page, Press Officer to the Mechanical Handling Exhibition

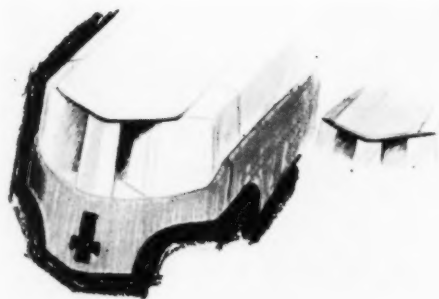
Introduction of Series 5

Features Unit Construction with New Styling



CONVEYANCER FORK TRUCKS REDESIGNED

By the Technical Editor



THERE CAN BE NO doubt that in redesigning their fork truck Conveyancers have succeeded in achieving a high degree of unit construction which will result in a considerable saving in time required for major overhaul work, as well as for routine maintenance. Body work has been re-styled to give a cleaner and more attractive appearance, it has also resulted in a considerable reduction in the overall height of the engine canopy.

The chief advantage of the new design is that the main sections of the transmission can be removed separately without having to take out the complete train. The truck can be 'broken down' for approach to the main sections as follows:

1. Body work and balance weight can be lifted away without interference with components or controls. The balance weight is held in position on two locations and fixed by one bolt.

2. The engine is integral with the torque converter/gearbox unit and back axle. The engine can be removed separately by taking out the radiator and unbolting the engine from the torque converter housing.

3. The engine with torque converter/gearbox unit can be removed by unbolting from the rear axle housing and removing the radiator.

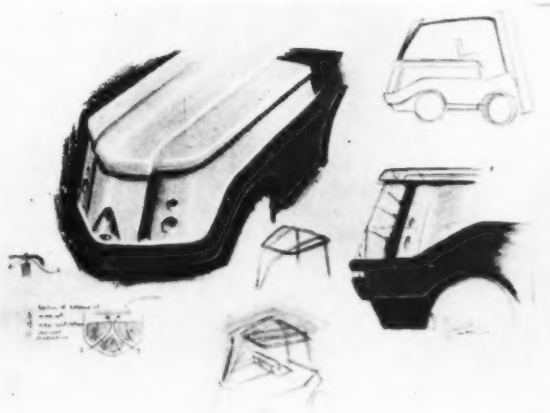
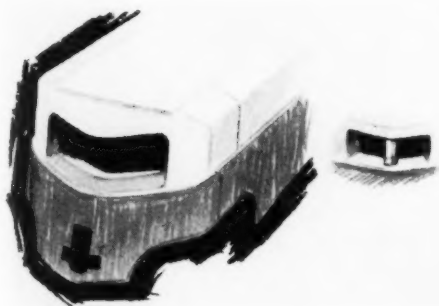
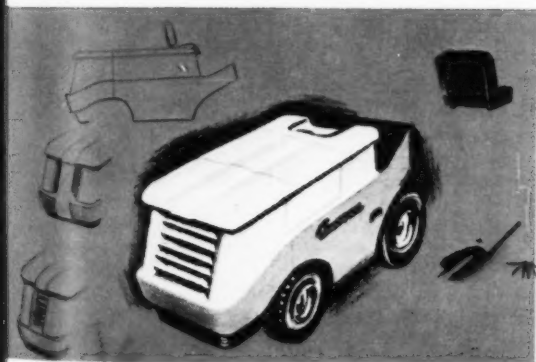


Fig. 1. A series of artist's drawings used in the evolution of new body styling for the Series 5. The style finally decided upon is at the top



Fig. 2. The neat clean appearance of the Series 5 can be appreciated from this general view

4. Engine with front axle complete is removed after lifting off the stacking unit and undoing six bolts.

5. The stacking unit which pivots on the driving axle is easily removed by taking out four bolts and disconnecting the tilt jacks. This enables the front cover to be taken off the driving axle so that the differential assembly can be serviced without having to remove the complete driving axle.

6. After removal of stacking unit the complete transmission can be taken out in one piece.

7. Steering box and hydraulic control valve can be removed with the front cross member.

8. Engine sump can be dropped into position and pistons and liners removed.

9. Brakes in the gearbox can be adjusted and liners changed without removing the gearbox from the truck.

In addition, other improvements are: An increase in load centre to 24 in; a reduction in distance between driving-wheel centre and fork face; new roller-type mast having an increased primary lift and reduced closed height.

Chassis Construction

The chassis is of robust all-steel fabrication built up from heavy section plate, side frames and stout bolsters. Structural members which give permanent rigidity are gusseted and welded to frames with continuous-run seams. The suspension points for the transmission unit, engine bearers and steering axle brackets are integral with the frames.

Hydraulic and fuel tanks are integral parts of the chassis and built in, one either side of the frame.

Steering

This is on the rear wheels and a conventional axle arrangement is used to give differential tracking during turning. The rear axle is pivoted to give lateral stability and flexibility over rough ground.

A Marles steering box of the cam-worm and a double roller type is used, and an assister handle is fitted to the

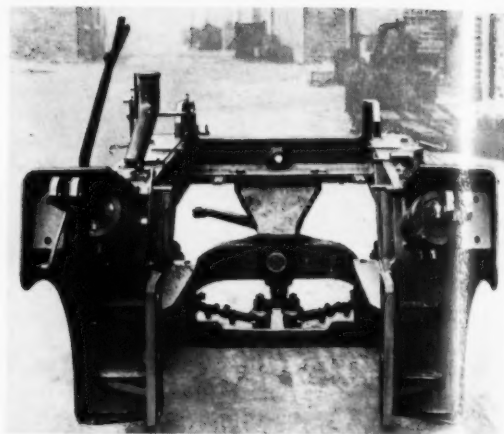
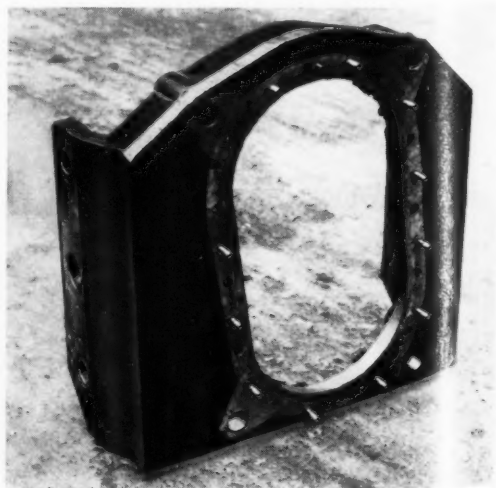


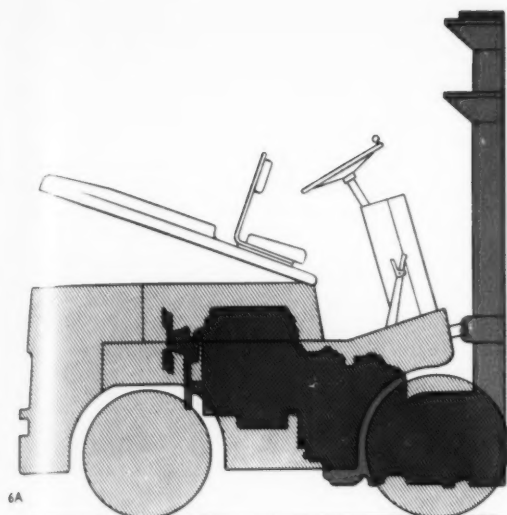
Fig. 3. The complete fabricated frame. Note the engine and hydraulic fuel tanks built into the side members

Fig. 4. A view of the frame from the steering axle end. Note the thick plate and massive welded construction

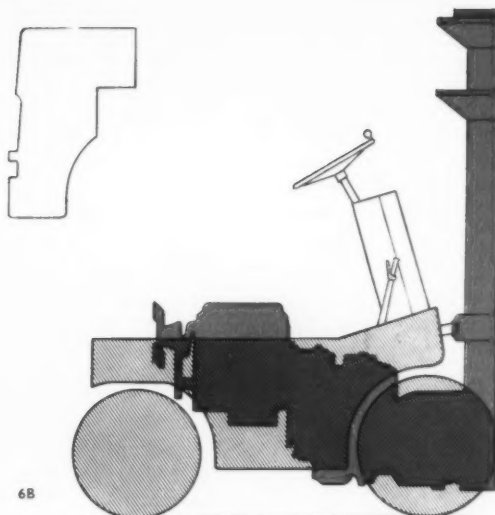


Fig. 5. This plate plays an important part in the unit construction. It is mounted within the frame and located between the engine and torque converter/gearbox unit

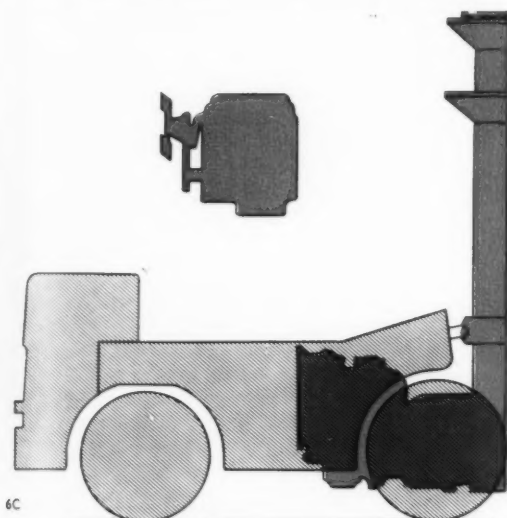




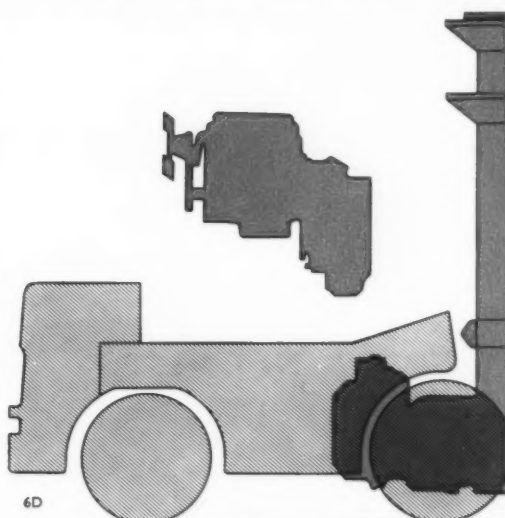
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6B



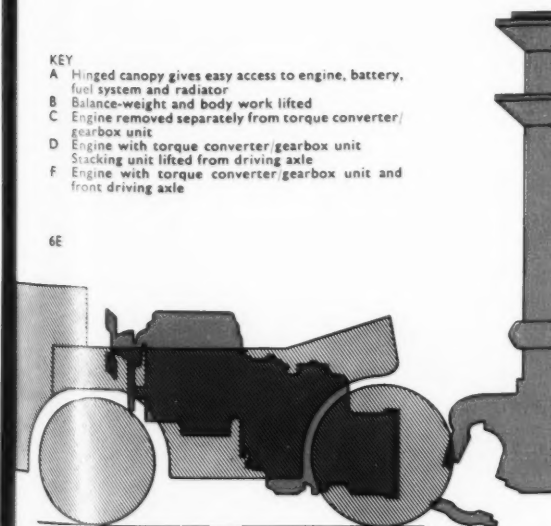
6C



6D

- KEY
- A Hinged canopy gives easy access to engine, battery, fuel system and radiator
 - B Balance-weight and body work lifted
 - C Engine removed separately from torque converter/gearbox unit
 - D Engine with torque converter/gearbox unit
 - E Stacking unit lifted from driving axle
 - F Engine with torque converter/gearbox unit and front driving axle

6E



6F

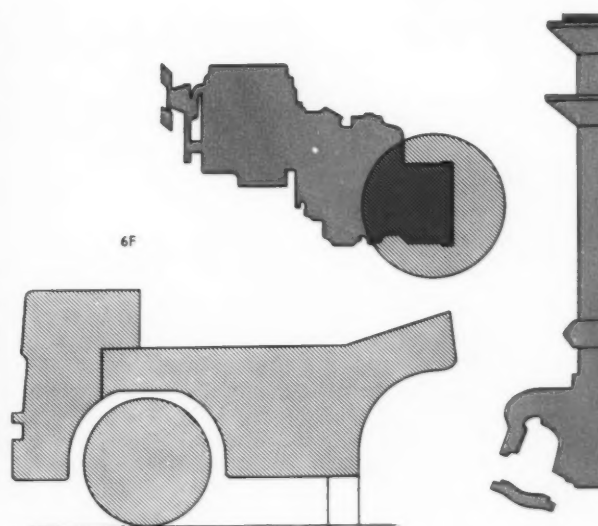


Fig. 1 A series of drawings showing how unit construction helps the removal of major units

hand wheel to enable the driver to steer without constantly shifting his grip.

Track rods and drag-links are fitted with self-adjusting ball ends which automatically compensate for wear and each ball end is fitted with a rubber boot to retain grease and to exclude foreign matter. All pivots are lubricated through grease nipples which can be reached without the necessity for a ramp or an inspection pit.

The steering wheel is adjustable in height, and power-assisted steering can be fitted if required.

Drive Axle and Transmission

Drive is on the front wheels and is taken from a torque converter and gearbox unit geared directly to an automotive type of differential unit in the front axle casing. From the differential the drive to the front wheel hubs is transmitted by twin half-shafts.

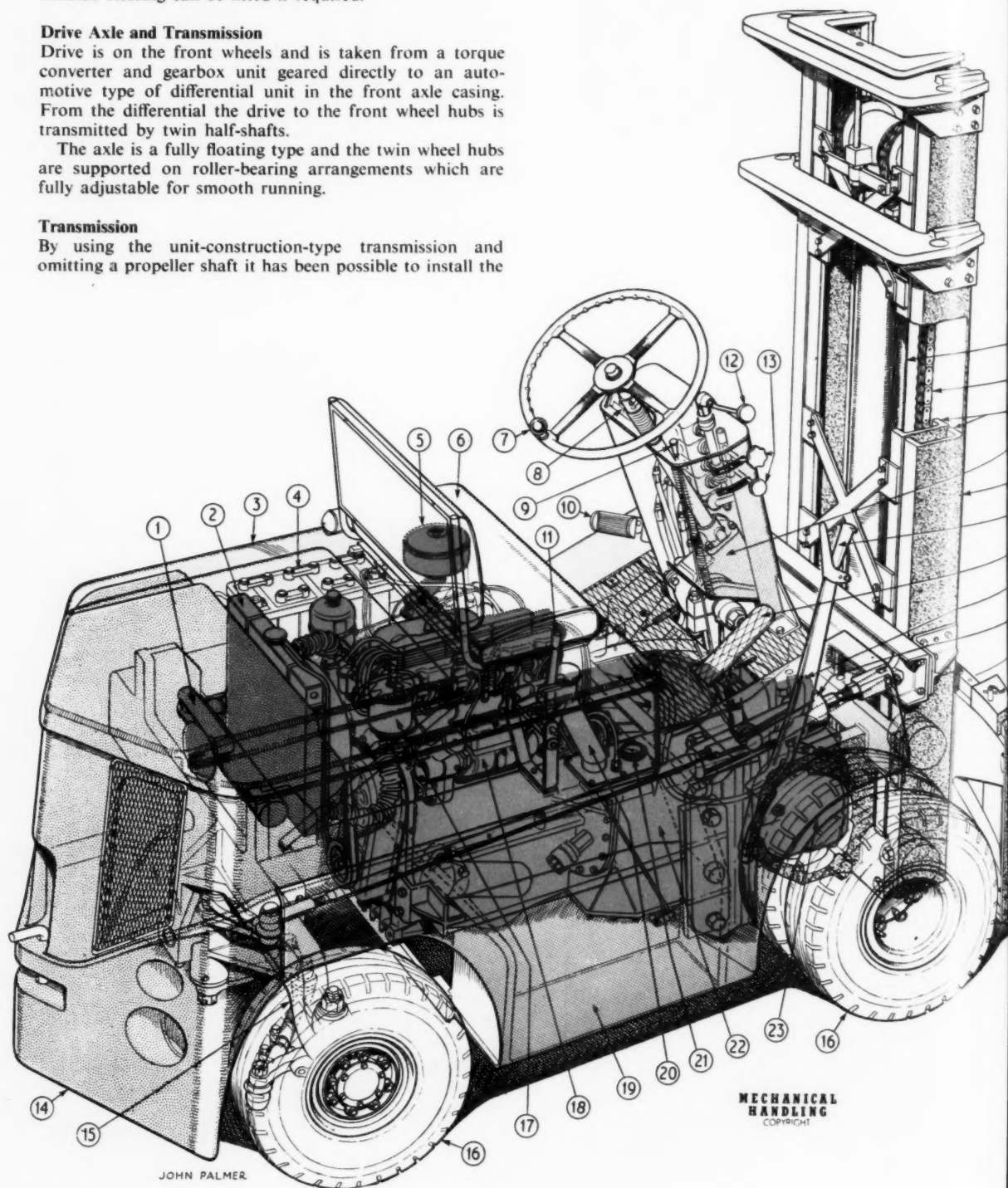
The axle is a fully floating type and the twin wheel hubs are supported on roller-bearing arrangements which are fully adjustable for smooth running.

Transmission

By using the unit-construction-type transmission and omitting a propeller shaft it has been possible to install the

engine low in the chassis frame with a resultant low centre of gravity, thus giving better stability. This also does away with the need for bevel gears in the final gear reduction, so that straight spur gears are used instead, the ratios of which can be varied to suit particular duties of the truck. Standard ratios are of 1 : 1 or $1\frac{1}{4}$: 1.

Power developed by the engine is transferred to the driving axle by the vortex circulation of oil between an



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engine-driven impeller and a turbine. The turbine is coupled to the driving axle through two trains of epicyclic gears which are controlled independently by hydraulically operated hand brakes for forward and reverse direction of travel.

A reaction member is fitted between the impeller and the turbine and this arrangement allows torque conversion action to take place during the initial accelerating period. As the truck gains speed the torque multiplications fall off until a speed is reached where the reaction member commences to free-wheel and the unit operates as a fluid coupling. Operation is smooth and infinitely variable for all conditions since the unit constantly adjusts itself when the truck is working to the particular torque and speed required.

The epicyclic gearbox provides reversal of final drive and simultaneously gives a further speed reduction. The band brakes are operated by fluid pressure generated by an integral gear pump driven by the impeller through an intermediate gear.

A monitored direction selector valve controls the oil flow to the brake bands and is operated mechanically by the direction selector linkage. The valve prevents the opposite traction selection being made when the engine is running quickly and so by eliminating the use of the torque converter as a brake, safeguards the transmission from misuse.

Mast

A roller-type mast is now fitted, replacing the sliding type and giving increased speed and efficiency of lift. It is telescopic in action and has a low closed height. The mast is now pivoted around the front driving axle, this has made it possible to reduce the clearance between the mast and the axle and furthermore the clearance remains constant for all positions of the mast.

Mast frames are made from extruded alloy steel channel and both fixed and moving frame channels are identical in section. The inner frame is stiffened by stout cross braces and the webs of the moving frame channels carry rollers which are supported on needle rollers and mate with fixed frame channels. The fork carriage is supported on similar rollers mating with the moving frame channels.

KEY

1. Horizontal exhaust outlet
2. Radiator and fan
3. Hinged fibreglass cover
4. 12-V battery
5. Engine air filter
6. Adjustable bench seat, accessible both sides
7. Telescopic steering wheel
8. Instrument panel
9. Fuel cut-off control (diesel engines); Engine choke (petrol engines)
10. Footbrake
11. Direction selector lever
12. Lift and tilt lever
13. Controls for attachments
14. Balance weight
15. Steering axle and linkage
16. Pneumatic or cushion tyres
17. Fuel oil filter
18. Engine, petrol or diesel
19. Fuel tank integral with chassis frame
20. Fuel filler
21. Fuel gauge
22. Torque-converter/gearbox unit
23. Front driving axle
24. Lift jack
25. Multi-link chain
26. Extruded alloy steel channel frames
27. Steering box
28. Roller-type mast pivoted around front axle
29. Hand brake
30. Accelerator pedal
31. Hydraulic pump
32. Tilt jack
33. 'Hook on'-type forks

Fig. 11. Artist's impression with key of the Conveyancer TC Series 5 truck



Fig. 7. Engine with torque converter gearbox unit assembled with the driving axle. Note hydraulic pump mounted on torque converter unit



Fig. 8. Showing the massive construction of the steering axle with its linkages

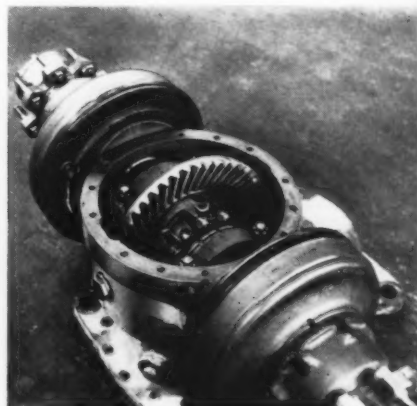
Fig. 9. The differential unit can be removed from the front of the axle casing without the need to dismantle the axle

Fig. 10. The driving axle unit

10



9



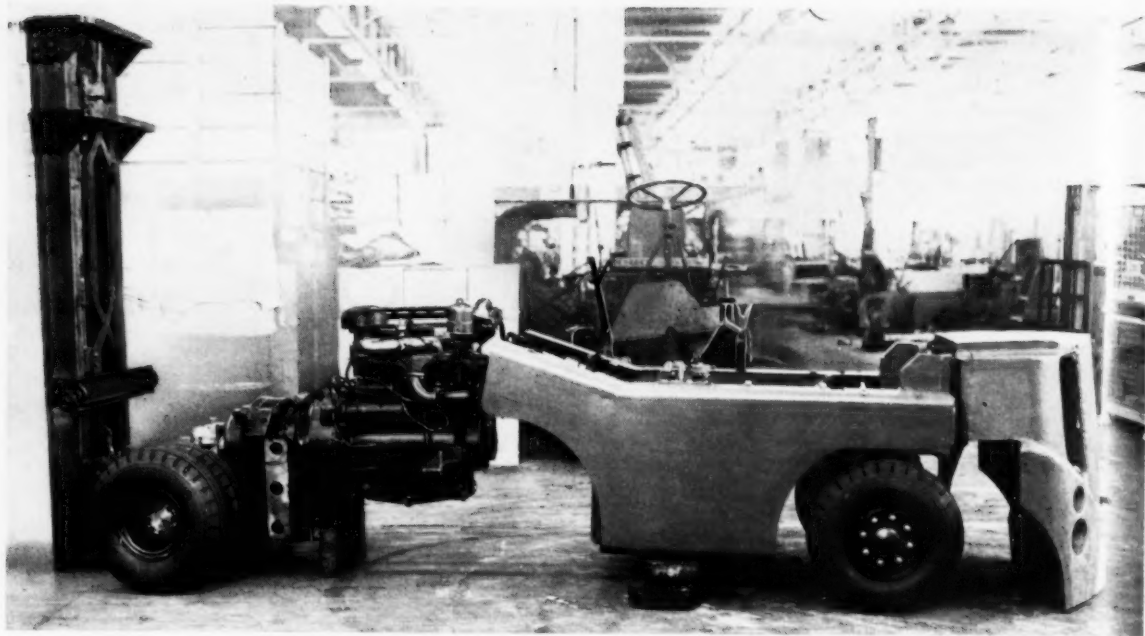


Fig. 12. A works view showing the power unit with driving axle and mast, wheeled out from the chassis frame. The shape and construction of the balance weight which has also been removed can be seen at opposite end

Two multi-link high-strength chains are used for raising and lowering the carriage, in a ratio of 2:1 with jack movement, loads can be lifted and carried well clear of the ground without increasing the closed height of the mast. The lift jack is spherically mounted in the mast base to reduce bending stresses and the tilt jacks are secured to the mast by pivot pins fastened in self-aligning spherical bearings.

Forks are of a new 'hook on' type which replaces the former bar type of attachment.

Hydraulics

Lift and tilt of the mast is now operated by a single lever, extra levers being required for attachments.

The mast is operated by hydraulic jacks, lifting and lowering being accomplished by a single-acting jack, ball-mounted in the base of the mast to obviate bending stresses. Lowering is by gravity under hydraulic control.

Tilt forward or back is achieved by twin double-acting jacks coupled in parallel and fitted with spherical bearings at either end. Speed of tilt and lift is controlled by the degree of lever travel coupled with engine speed as set by the accelerator pedal.

Hydraulic pressure is provided by a Plessey gear-type pump, engine-driven by a shaft passing through the torque converter/gearbox unit. The system is of 'open centre' type, i.e. on low-load oil circulating freely at low pressure. Lever-operated control valves are banked together and the valve bank includes a relief valve to control system pressure. Up to two additional valves can be fitted to control attachment operation and all levers are spring loaded to return to neutral when released. The selector control valve has been improved to cut down pressure drop losses and the spindle modified so as to make inching of the load more controllable.

The system is self-bleeding and all piping is of reinforced flexible hose type. An immersed suction-type filter is used and the filter element is easily removed for cleaning.

Controls for all hydraulics are clustered around the steering column in a panel. This panel with valves and controls can be quickly removed if the hose connections are broken.

Wheel Brakes

Girling 12 in. \times 2½ in. (305 \times 57 mm) hydraulic brakes are fitted to the front wheels and pedal operated through a compression-type master cylinder with integral fluid reservoir. A hand-brake ratchet operated to give a self-locking action for parking is mechanically linked to the same brake shoes.

A separate adjustment is provided to give independent even braking for both hydraulic and mechanical applications.

Power Units

A choice of three different engines is offered. The Standard Series 23 C diesel, a 4-cylinder engine rated at 45 b.h.p. at 2,500 r.p.m.; the Perkins Four/192Z 4-cylinder diesel rated at 58 b.h.p. at 2,400 r.p.m., and the Standard 87 MM 4-cylinder petrol engine rated at 40 b.h.p. at 2,500 r.p.m.

The exhaust and silencer does not protrude above the engine canopy on the Series 5 but is arranged horizontally beneath the canopy. Burnt gases are diffused on to a plate at the rear of the truck where they are expelled by the fan at the farthest point from the driver. A point of interest is that air is pushed out of the engine compartment and is not drawn in through the radiator.

Electric starting is used on all trucks and is operated by a push-button for the petrol engine or a three-way self-returning key switch in the case of diesel engines. A 12-V battery is installed under the top canopy and is mounted on asbestos blocks to protect it from excessive temperatures.

Cold-starting equipment is installed as standard fitting on diesel models. With Standard engines the equipment comprises a small auxiliary tank, plunger-type priming pump, fuel atomizer jet and heater plug with the necessary

pipes. Perkins engines are equipped with a small header tank automatically topped up by the fuel filter overflow, and a C.A.V. 'Thermostart'.

Controls

With the fluid-drive type of transmission only two foot controls are required, one for the foot brake and the other for acceleration. There is no gear shift, but in its place is a simple direction selection lever which, with the engine running is pushed forward or pulled back to select 'forward' or 'reverse' motions, respectively. The drive is then fully automatic, pressure on the accelerator and release of the brake giving a shockless take-off with smooth acceleration to governor limited top speed.

Switches, instruments and warning lights are located on a panel in the front dash and the single lever controlling mast operation is located near to the driver's right hand. This lever is connected to the two hydraulic control valves so that with lever forward the mast tilts forward, and lever up, the forks are raised.

Accessibility

The advantages of the unit construction system in regard to the overhaul and maintenance of major items has already been referred to, but accessibility to other items has also been given careful consideration on the TC Series 5. There is, for example, a hinged cover to the engine canopy which opens up in the style of a 'grand piano' and is made of fibreglass. A self-locking support is fitted to hold the cover in the raised position so that the engine, battery, fuel system and radiator are made readily accessible for routine servicing from waist level. There is a permanent gap provided between the hinged cover and the side of the canopy which, although invisible from the outside, allows air to be drawn in by the fan and pushed out through the radiator and openings provided in the balance weight.

The torque converter and gearbox as well as the brake master cylinder are located beneath quickly-removable floor plates. Grouped hydraulic control valves are exposed by removing a single cover.

Greasing points are accessible without the need of a

servicing ramp or inspection pit and standard grease nipples are fitted throughout. Dipsticks for oil levels in the engine sump, torque converter and driving axle are all readily accessible.

The excellent accessibility associated with the TC Series 5 truck cannot perhaps be better emphasized than from the series of instructions that have been prepared by Conveyancer for the removal of major items. As a typical example, we reproduce in the following, the instructions given to remove the engine unit from which it will be seen that this can be carried out in only nine comparatively simple operations.

1. Drain and remove radiator, disconnect the electrics at the panel and fuel pipes at three points.
2. Undo four bolts holding down body assembly and lift off the body assembly complete.
3. Disconnect exhaust pipe at the engine end.
4. Sling engine.
5. Remove two holding-down bolts from front-engine mounts.
6. Drain torque converter.
7. Remove all nuts and bolts from the joint between engine and torque converter.
8. The engine may now be moved backwards until the turbo-unit clears the torque converter case.
9. The engine complete with turbo-unit can now be lifted clear of the chassis.

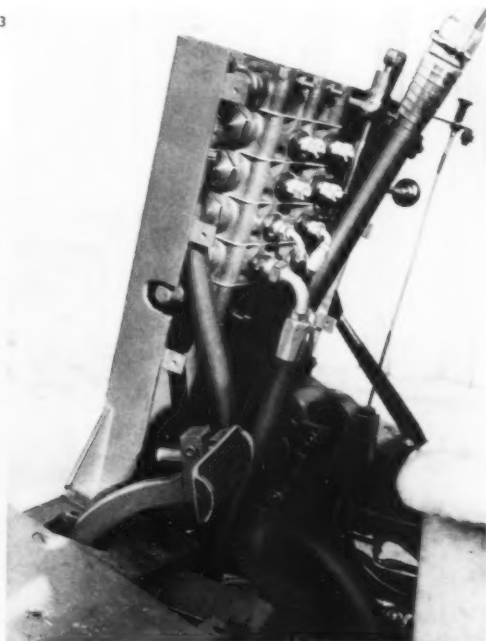
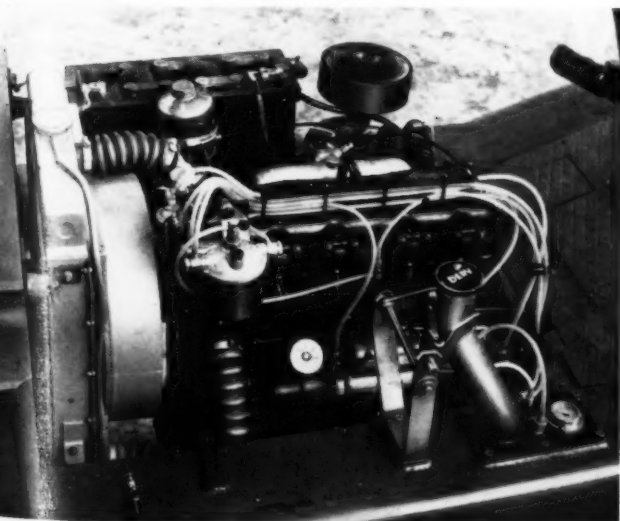
Range

Five models are at present offered in the TC Series 5 truck range as follows:—

Tyres	Capacity	Type
Pneumatic	4,000 lb at 24 in load centre	TC4 Utility
Pneumatic or cushion	6,000 lb at 24 in load centre	TC6 - 24
Pneumatic large	6,000 lb at 24 in load centre	TC6 - 24 yard
Cushion (long wheelbase)	3 ton at 27 in load centre	TC67-27
Pneumatic large (long wheelbase)	3 ton at 27 in load centre	TC67-27 yard

Fig. 13. As this view with covers removed shows, the panel with all hydraulic valves and controls are conveniently grouped. Note telescopic steering wheel column

Fig. 14. This view shows the clean lines of the engine unit and easy accessibility when the body work has been lifted off



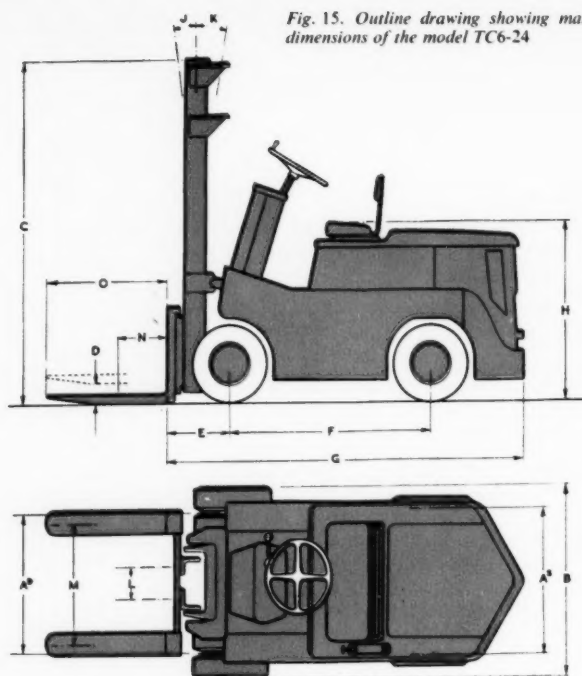
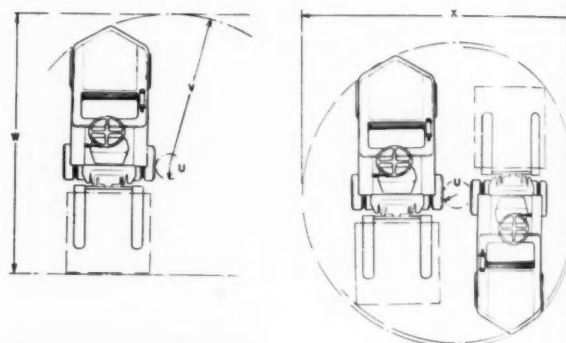


Fig. 15. Outline drawing showing main dimensions of the model TC6-24

- C Mast Equipment:**
 Total lift of forks 9 ft (2,743 mm) 12 ft (3,658 mm)
 14 ft (4,267 mm)
 Closed height . . . 73 in (1,854 mm), 91 in (2,311 mm)
 105 in (2,667 mm)
 Extended height . . 135 in (3,429 mm), 171 in (4,343 mm)
 195 in (4,953 mm)
- D Primary lift of 13½ in (343 mm) without increasing closed height**
- E Wheel centre to front face of forks . . . 17½ in (438 mm)**
- F Wheelbase . . . 56 in (1,422 mm)**
- G Length to front face of forks . . . 98 in (2,489 mm)**
- H Seat height . . . 46 in (1,168 mm)**
- J Forward tilt angle, unladen . . . 3 deg**
- K Backward tilt angle, unladen . . . 10 deg**
- L Minimum fork spacing (between centres) . . . 8 in (203 mm)**
- M Maximum fork spacing (between centres) . . . 32 in (813 mm)**
- N Face of forks to load centre (standard rating) . . . 24 in (610 mm)**
- O Fork equipment:**
 Lengths: 30 in (762 mm), 36 in (914 mm), 42 in (1,067 mm), 48 in (1,219 mm)
 Section: 6 in (152 mm), 2 in (51 mm), tapering to ½ in (13 mm) over final 24 in (610 mm)

Fig. 16. Space requirements for the model TC6-24

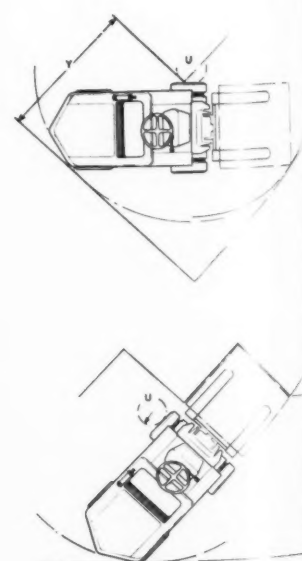


DIMENSIONS (TC6-24)

- AD Track—driving:**
 22 in × 10 in cushion (single) . . . 33½ in (825 mm)
 7 in × 9 in pneumatic (twin) . . . 36½ in (921 mm)
- AS Track—steering:**
 22 in × 5 in cushion (single) . . . 33½ in (854 mm)
 7 in × 9 in pneumatic (single) . . . 34½ in (876 mm)
- B Overall Width:**
 22 in × 10 in cushion (single) . . . 42½ in (1,079 mm)
 7 in × 9 in pneumatic (twin) . . . 50½ in (1,283 mm)

Aisle widths and turnings: (TC6-24)

	40 in × 48 in (1,016 × 1,219 mm) pallet		48 in (1,219 mm) square pallet		48 in × 60 in (1,219 × 1,524 mm) pallet	
	in	mm	in	mm	in	mm
U Inner radius						
pneumatics	3½	89	3½	89	3½	89
cushions	7½	191	7½	191	7½	191
V Outer radius						
pneumatics	87	2,210	87	2,210	87	2,210
cushions	87	2,210	87	2,210	87	2,210
W 90 deg stacking						
pneumatics	114½	3,670	152½	3,874	152½	3,874
cushions	114½	3,670	152½	3,874	152½	3,874
180 deg turning						
pneumatics	165	4,191	171	4,343	175	4,445
cushions	165	4,191	171	4,343	175	4,445
Y Intersecting aisles						
pneumatics	81	2,205	82½	2,096	86	2,182
cushion	78½	1,994	79	2,007	84	2,134
Z 45 deg stacking						
pneumatics	90	2,286	96½	2,491	91	2,311
cushions	90	2,286	96½	2,451	91	2,311



Specification (TC6-24 only)

General details of this Series 5 truck, which is typical from the range, and which have not been mentioned previously, are as follows:—

Tyre Equipment

<i>Pneumatic</i>	or	<i>Cushion</i>
Front 7 × 9 in (178 × 229 mm) twin		22 × 10 in (559 × 254 mm) single
Rear 7 × 9 in (178 × 229 mm) single		22 × 5 in (559 × 127 mm) single

Lifting Speed

45 ft (13.7 metres) per min.

Ground Clearance

Mast	3 in (76 mm)
Centre	6½ in (165 mm)
Front Axle	3 in (76 mm)
Rear Axle	4 in (102 mm)

Unladen Weight

9,300 lb (4,218 kg) approx.

Performance

Engine	1 : 1 Gear ratio		1.25 : 1 Gear ratio	
	Speed	Gradient	Speed	Gradient
Standard Diesel	9½ m.p.h. (14.8 k.p.h.)	1 in 5½	7½ m.p.h. (11.5 k.p.h.)	1 in 4½
Standard Petrol	9½ m.p.h. (14.8 k.p.h.)	1 in 6½	7½ m.p.h. (11.5 k.p.h.)	1 in 5
Perkins Diesel	8½ m.p.h. (14 k.p.h.)	1 in 5½	7 m.p.h. (11 k.p.h.)	1 in 4½

Load Capacities (Mast Vertical)

ENGLISH

Load Centre (in)	24	26	28	30	32	34
Working Load (lb)	6,000	5,720	5,470	5,240	5,020	4,830

METRIC

Load Centre (mm)	550	600	650	700	750	800	850	900
Working Load (kg)	2,720	2,720	2,620	2,500	2,400	2,300	2,210	2,130

HYDRAULIC LUFFING GEAR ON DOCKSIDE CRANE

THE newly developed dockside crane, announced by Stothert & Pitt and reviewed in *Mechanical Handling*, August, 1959, uses hydraulics for the luffing gear. This, like the rest of the structure, is a great step forward in crane design because not only does the mechanism acquire the ease of control and additional safety implicit in any hydraulic system, but the weight of the luffing gear is reduced to about a quarter of that usual in mechanical systems. The hydraulic system was designed and manufactured by Keelavite Hydraulics, Ltd., in collaboration with Stothert & Pitt, Ltd.

The Hydraulic Circuit

Filtered oil from the reservoir is pressurized to the working circuit pressure of approximately 1,000 lb/sq. in. by a Keelavite GP series gear pump driven by an electric motor. Oil from the pump passes through a micro-filter, which may be by-passed in the event of a blockage, to a multi-port directional valve. This is manually controlled by the crane driver and is linked to a second directional valve mounted on top of it. Oil flow from the main directional valve passes through a pilot-operated non-return valve to the appropriate end of the luffing cylinder. Exhaust oil is returned to the valve via a second pilot-operated non-return valve. A flow-limiting valve is included in the return line from the main directional valve to the reservoir. The pilot-operated non-return valves are controlled by the second directional valve, and operate on a take-off pressure from the main circuit pressure relief valve, situated down-stream from the micro-filter. The valve is also designed to unload the pump when both directional valves are in the central position.

The operation of the luffing cylinder is of particular interest. The cylinder has four operating ports, one at either extremity and two others at some inches inboard of these. Non-return valves are included in the supply line to the outermost ports and these permit oil flow only into the cylinder. The flow through the other two ports is controlled by two pilot-operated non-return valves. One of these is set to allow oil to flow into the cylinder, the other to allow oil to escape. To move the cylinder from its extreme position oil is fed through the appropriate outer supply port until

the piston passes the inner supply port. Both lines then supply oil into the cylinder, exhaust oil escaping via the inner of the opposite end ports and through the associated pilot-operated non-return valve. Decelerator valves are fitted to limit the pressure differential between the two sides of the piston to slightly above working pressure so as to limit the loads in the cylinder and the jib. If the driver were to suddenly stop or reverse the luffing of the jib these decelerator valves would bring the piston, and hence the jib, to a smooth stop.

As an additional safety measure the luffing cylinder has been designed to incorporate the associated non-return valves. This ensures that the mechanism is protected in the event of power or pipe failure.

The luffing cylinder on the dockside crane is controlled by Keelavite hydraulics



HANDLING OF LEAF TOBACCO

By a Special Contributor

LEAF TOBACCO with a dutiable value running into hundreds of millions of pounds passes through the seven bonded warehouses of Port of Manchester Warehouses, Ltd., Trafford Park, Manchester, every year. These warehouses, with a total floor area of about 476,000 sq. ft., are all single-storey structures, with a height of 30 to 41 ft and they are divided into long bays where cases weighing 4-5 cwt, and casks about 10 cwt, of pressed leaf from the main growing countries of the world are held in bond and, after the payment of Customs duty, subsequently delivered to the manufacturer's order. Over 100,000 packages are opened, weighed and sampled each year.

Three of the warehouses contain mechanized installations for this net weighing procedure and included in that number is the new five and a half acre building which houses three separate installations. One of the most interesting of these is the equipment supplied by Walter Somers (Materials Handling), Ltd. With this equipment the sequence of operations is as follows: The packages for weighing are taken from the stack by cranes and lowered on to simple

bogie trolleys. After the lid has been removed from the case a special tray is laid in its place. These trays are each fitted with two hardwood skids to facilitate movement on roller conveyor and all have their weight accurately adjusted to the same figure. The case is pushed into, and clamped by, the Somers rotary tippler, which then makes a half revolution, thus delivering the case on its tray to roller conveyor, the trolley being now on top. The trolley is removed to a position where it is convenient for replacement at a later stage. Next the case is pushed along the roller conveyor track, on its tray, to a point beneath a radial-arm crane. This lifts off the timber covering from the package and places it on a turntable set in the floor, leaving the net tobacco, on its tray, to go to the Avery optical lever scale, the platform of which carries a roller conveyor. The weight recorded by the Customs Officer is the net weight of

Fig. 1. Somers rotary tippler. Case of tobacco leaf (4½ cwt) about to emerge. The case is resting on the tray fitted with skids which carry it over the roller conveyor leading to the scale. The trolley on which the case was brought to the scale may be seen on top of it

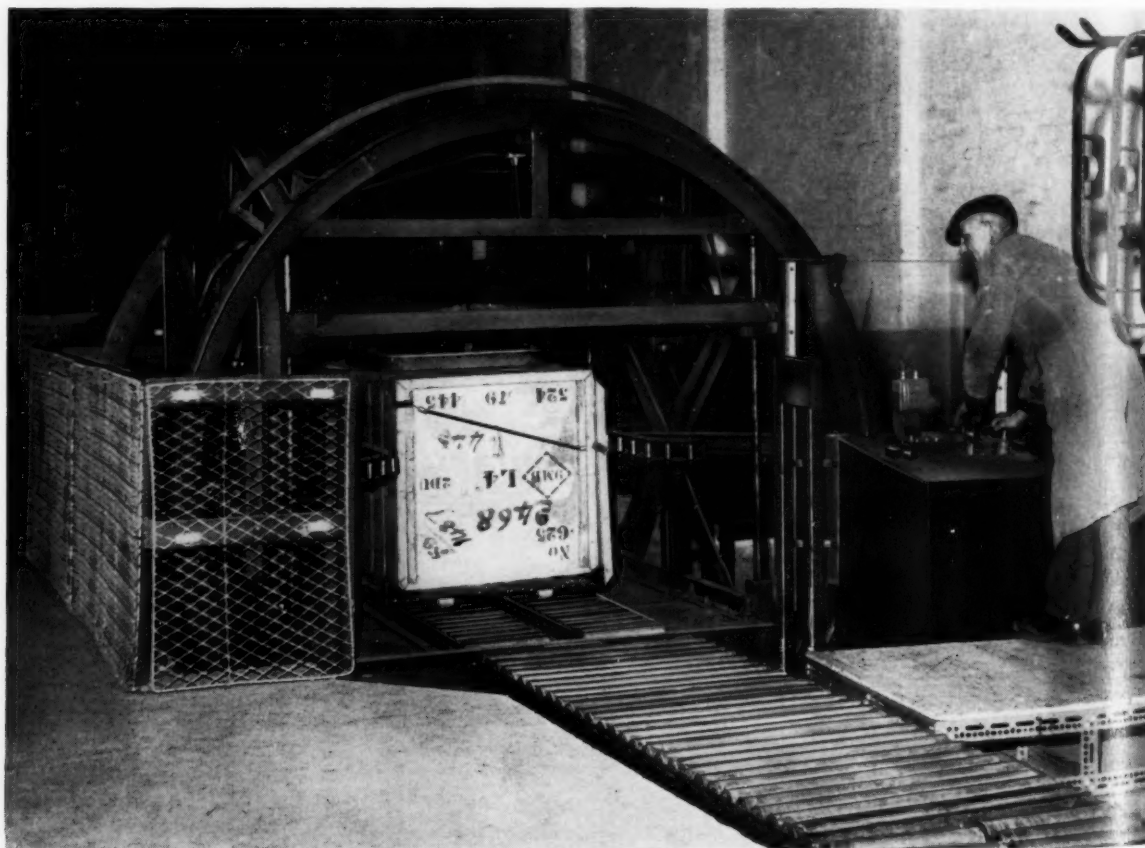


Fig. 2. A Demag hoist on a radial arm lifts cases from leaf which, on its tray, is then carried on roller conveyor to Avery scale where it is weighed in the presence of a Customs Officer

Fig. 3. After passing the scale, the exposed leaf continues its journey on a conveyor to another station where its own particular wooden case is restored. The trolley will then be laid on top of the case before it again enters the rotary tippler



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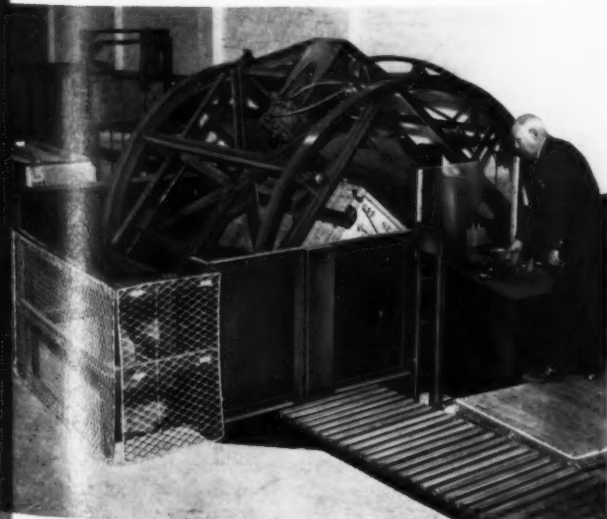


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tobacco, the standard tare of the tray being offset in the scale. From every case a 4-lb sample is then taken for the owner.

The tobacco is carried forward on the conveyor to a point where a second electric hoist picks up its original timber casing from the turntable, and replaces it on the tobacco. A trolley is placed, inverted, on the case, which is then pushed into the rotary tippler, clamped and rotated 180 deg. After unclamping the case emerges from the tippler on its trolley. The tray is lifted off and the case

Fig. 4. Somers tippler. The tippler has been traversed across to the return line of conveyor. The case is securely clamped while being rotated, and it will emerge on its trolley ready for re-cooping and stowing back in warehouse



coopered up before being returned to its stack in the warehouse. As many as 200 cases go through the Somers tippler in a normal working day. The same procedure is adopted for the handling of casks. The tippler unit is so designed that the effective clamping range can readily be varied to suit either casks or cases.

Another noteworthy feature of this installation is that the entire rotary tippler unit travels laterally so that it can serve both the incoming stream of packages and those that are returning down the other line of conveyor after weighing. In No. 26 Bonded Warehouse, one fully automatic installation deals with cases only, another with casks only, and the third with casks and cases. The first two were made by R. G. Smith Engineers, Ltd., and the third by Walter Somers. In No. 9 Bonded Warehouse is another of the R. G. Smith units for casks only, and in No. 24 Bonded Warehouse what is affectionately known as "the poor man's tippler"—a very effective hand-rotated machine for cases only made by W. & C. Pantin & Co., Ltd.

In tobacco warehouses, such as may be seen in other ports, conditions may be favourable for the use of fork lift trucks for stacking purposes, but that is not so in Manchester. Because the single-storey buildings are of considerable height, the stacking is done within very precise limits and very successfully by overhead gantry electric cranes of many makes, but nearly all the latest were supplied by the Clayton Crane & Hoist Co., Ltd. These have been stressed for 30-cwt loads but are used with a single-fall block for 15 cwt. They are, therefore, particularly robust, and unusually high-operating speeds have been specified. Seventy-two cranes are in use, including some which were first put into service in 1927 and are still performing efficiently. Fifty of these cranes are fitted with Somers tongs.

Prior to the installation of the Somers lifting tongs, chain clamps of various patterns had been in use for attaching packages to the cranes. The aims in developing automatic lifting tongs were to enable stacking speed to be maintained, or improved, without the need for having men on the stacks,

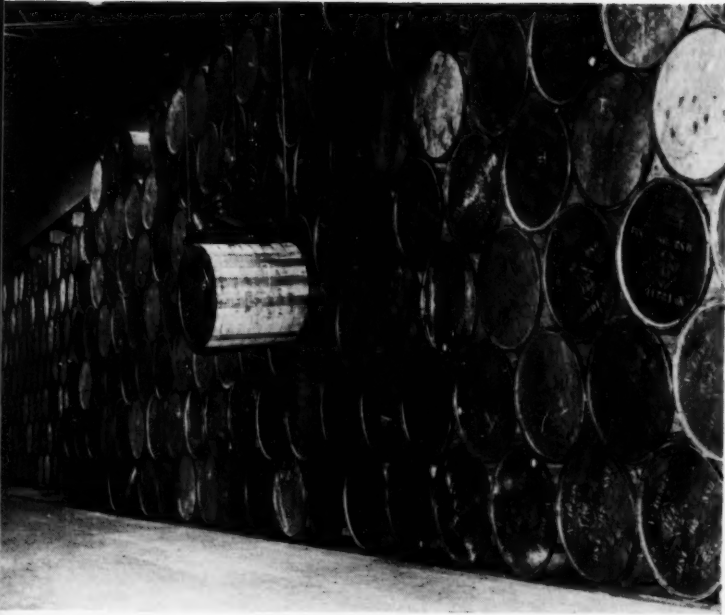


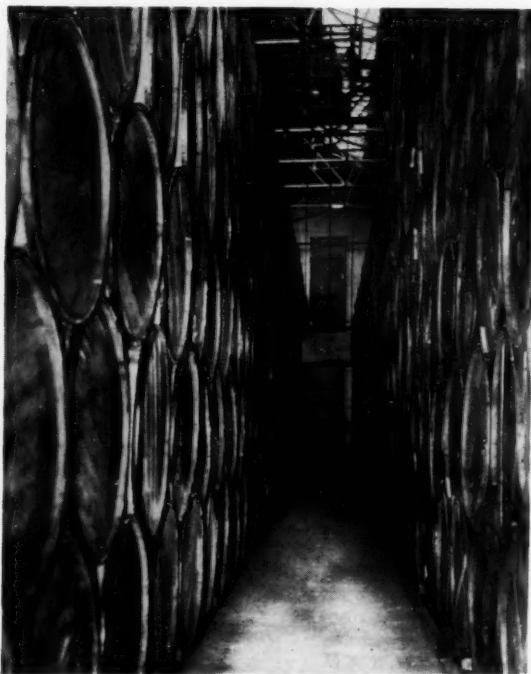
Fig. 5. Showing the Somers tongs lifting a $\frac{1}{2}$ -ton hogshead of tobacco in one of the many stores. All stacking is done by overhead travelling crane. The tongs are steadied by two end fall wires.



Fig. 7. All this close precision stacking of leaf tobacco has been done by overhead travelling crane with Somers tongs

and to enable the fullest advantage to be taken of all space beneath the cranes. The importance of these aims is accentuated by the fact that, due to Customs procedure, every package must be handled at least four times and that the overall capital cost of providing accommodation for a cask of tobacco is in the neighbourhood of £15. In order to

Fig. 6. Showing the narrow limits within which the Somers tongs from overhead crane can successfully function



achieve accurate positioning when stacking, two wire cables are attached to the respective ends of the tongs and lead up to self-reeling drums mounted on either side of the travelling carriage of the crane. This expedient effectively controls any tendency for the load to rotate about the axis of the crane rope. It was anticipated that, due to the high rates of acceleration and deceleration of the cranes on the long and cross travel, some trouble would be encountered with 'pendulum swing' of the load, but in practice this has not been found to be the case.

Another aspect of the problem was the need to reduce to a minimum the side clearance required for the insertion of the tongs between the ends of the packages in adjacent rows. The alloy steel jaws, which require a bare 4-in clearance, consist of rectangular plates in which are inserted many detachable studs of toughened steel and sharpened on the contact points. With these jaws it is possible to lift one 10-cwt cask or two 5-cwt cases at one time in perfect safety and without in any way damaging the plywood or hardboard from which they are constructed. The studs are replaceable. A stacking height limited solely by crane clearance has been achieved, and with very little practice the crane drivers have been able to build orderly stacks up to 30 ft high, entirely without the assistance of slingers. Sixty of the existing cranes will ultimately be equipped with these tongs.

Most of the tobacco for storage with the Port of Manchester Warehouses, Ltd., arrives by a short road haul from vessels in the Manchester Docks, though a fair quantity is brought by road from Liverpool.

As raw tobacco is imported at a declared moisture content, it is of great importance that it should be weighed as soon as possible after arrival at warehouse, before any appreciable interchange of moisture between the tobacco and the atmosphere can take place. Without going into the economic aspect of the situation and the labour side of tobacco movement, the paramount consideration has been to achieve a smooth-running technique capable of fully satisfying the importer's requirements.

HANDLING IN THE PRODUCTION OF BENEDICTINE

Dom Bernardo's Elixir



WHEN King Francis I of France visited the ancient Abbey of Fecamp in 1534, he sampled the home-produced elixir, of which the Holy Fathers were justly proud. Having drunk, he is credibly reported as exclaiming, '... Foy de gentilhomme, oncque ne goutzi de meilleure!' Freely translated, this might be rendered as, 'I have never tasted it so good': more exactly perhaps as, 'On my honour as a gentleman, I have never tasted a better'. This oracular and Royal observation has been echoed now for more than 400 years by connoisseurs in many lands, and by those who, although lacking in any particular critical appreciation of the more potent refresh-

ments, nevertheless know what they like. The King of France was, of course, referring to the liqueur which we know as Benedictine, and which takes its name from the ancient Benedictine Abbey, where it was first compounded.

The mystery which is normally associated with the preparation of liquors with long historical backgrounds, and particularly those with ecclesiastical affiliations, conjures up visions of cowed and hooded monks, stirring large cauldrons in dimly lighted vaults: of strange ingredients, gathered only at certain seasons and often in rather peculiar circumstances: of endless cellars where the fruit of these labours matures for aeons of time, finally reaching the fortunate consumer with an almost magical quality and potency enshrined in its complicated synthesis. Surprisingly enough, almost all this was perfectly true of Benedictine. There is a good deal of reliable evidence as to the circumstances in which the liqueur was originally prepared, and indeed a few of the original pottery stills are preserved to this day, as part of the fascinating history of this remarkable concoction. Preparation of the liqueur was certainly carried out by monks, and the ancient Abbey must also have contained many a dimly lighted vault and cellar. The ingredients were seasonally gathered, and only the peculiar circumstances of gathering and the unconventional elements were absent, those belonging rather to sorcery and witchcraft, than to the endeavours of devout and holy men for the benefit of mankind.

The tale of Benedictine would be of great interest, even if it stopped short at this point. But there is more to come, for the present methods of production have little in common with the endeavours of the monks of Fecamp, and are mechanized to a very high degree. It is the purpose of these notes to give some indication of the degree of mechanization involved, to refer to certain of the handling methods employed, and to give an idea of the extent of the operation.



Fig. 1. General view of the main entrance, showing the great stairway and the Court of Honour, under which are situated the extensive cellars

*Sales Manager, Omic Ltd.



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Fig. 2. General view of the bottling room, showing the conveyors and work positions. The circular tables carry the smaller bottles during processing



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Fig. 3. A corner of the distillation room with copper stills and mixers. The fork lift truck is handling bagged sugar

But since the origin of the product is set far back in the pages of history, it may be of interest to consider the background against which the present operations are carried out, producing, as they do, results identical with those which came from the more laborious methods of antiquity.

The Benedictine story begins in the 16th century at the Abbey of Fecamp on the coast of Normandy, where there had already been a religious colony for some 800 years. The Monks of the Abbey had provided a centre for philosophers, literary scholars and historians, at the same time retaining an interest in agricultural research, in common with other Benedictine establishments. It was in these circumstances that, in 1510, a learned monk, Dom

Bernardo Vincelli, concocted an 'Elixir Benedictine', as a result of patient researches in the laboratory, and lengthy experimentation with the herbs for which the local Normandy countryside was famous. This elixir found very considerable favour, and is recorded as having an exquisite taste, and a recuperative effect upon the sick. It also apparently achieved an even wider and perfectly understandable popularity with those in rude good health, a phenomenon which persists to the present day.

It was during this period that Francis I made his famous comment on the virtues of the elixir; and all went well for another 250-odd years, until the violence of the French Revolution made its impact felt on the establishment at Fecamp. The great Abbey was sacked and set on fire; its archives and treasures were destroyed and its personnel disbanded. Some of the monks just had time to rescue a few of these treasures and archives, which were entrusted for safe-keeping to certain inhabitants of Fecamp, who were regarded as reliable. Among those so preserved, was a book of recipes and formulae, and one of these described Dom Bernardo's famous elixir. It was thus that the secret results of the old monk's labours were preserved for posterity, although they were not to be available for reference until more years had passed. In fact, they were lost. It seems likely that they would have remained lost, had it not been for the exertions of an important citizen of Fecamp, named Alexandre Legrand, a man of culture and of an enquiring turn of mind. On going through certain ancient documents which he had inherited, he came across information which enabled him, after much patient and scrupulous research, to reconstitute the formula of the original elixir, and he

completed his researches by 1863. He was now in business, and in 1876 Monsieur Legrand turned his flourishing concern into a private company, registered his labels and the design of his bottles under the Berne Convention, and put up the present building.

The Building

The building is of particular interest, as it was inspired by the Renaissance style, and combines two functions. Fig. 1 shows the imposing and ornate frontage, and this part of the building, with its ecclesiastical aspect, houses a museum, containing a variety of ancient documents, charters and items of religious and artistic interest, which is visited by large numbers of tourists every year. The rest of the building, apart from office accommodation, is taken up with the manufacture of the liqueur itself; and various additions have been made to the structure, though not always in the same architectural style, to meet the growing needs of production. An example of this variation in style is the very modern warehouse containing packing materials, to which later reference is made. There is, then, an interesting mixture of the ornamented and pinnaced original structure, with its gorgeous and decorated interior, housing not only a museum, but also (a little unexpectedly), a section of the production area, and the modern, type-designed portion, with its more utilitarian aspect. The whole area is concerned with Benedictine, past and present, apart from one or two less-well-known side-lines.

The Product

There are two main types of Benedictine, the main external difference between them being that one is contained in a dark green glass bottle, the other in a brown bottle. That contained in the green bottle is the original liqueur, the other being known as 'B and B,' or 'cachet or'. Each of the two kinds is golden in colour, but 'B and B' is a more recent production, and has a cognac content suited to the tastes of certain important markets. Production is on a batch system, the same apparatus being used for both types of liqueur. Numerous attempts have been made to copy the liqueur, both as to the design of the bottles and labels, and also as to the contents. A special show-case containing some 250 counterfeit bottles is offered for inspection, and each of these bottles represents a protective legal battle fought and won.

Fig. 4. One end of the bottling room, showing the three bottling machines. Three of the illuminated inspection points can be seen, with their magnifiers



Fig. 5. Part of the modern packing material warehouse. Materials for both cartons and cases are stacked solid, and when required are taken by conveyor to the packing room

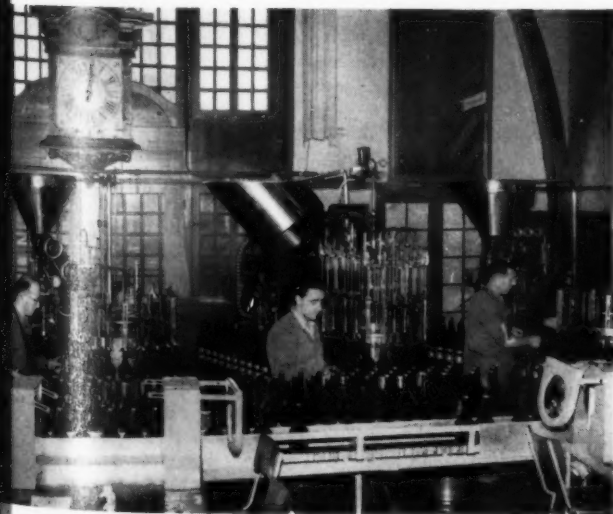
The Distillation Room

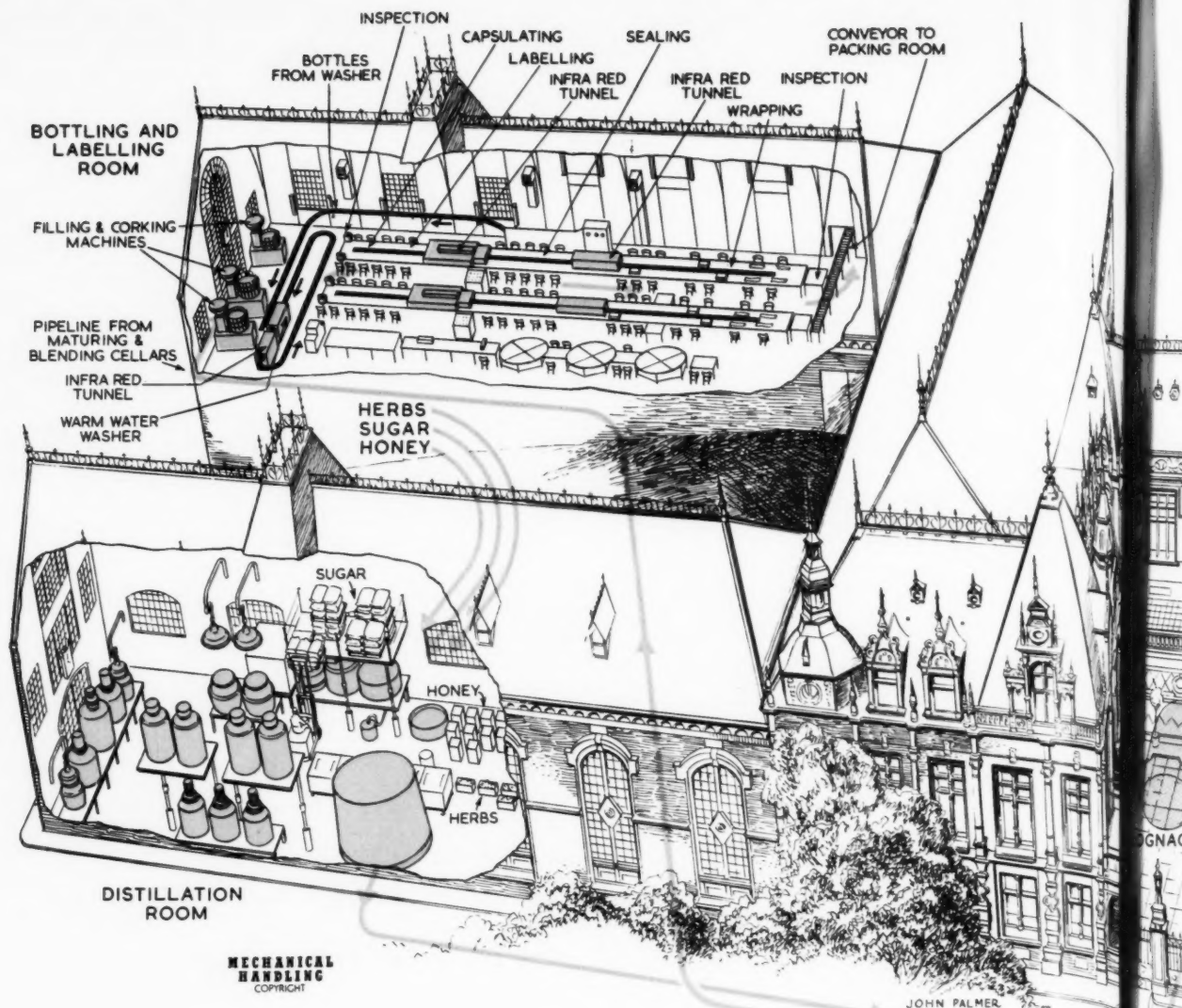
Production really begins in the still room, where distillation is done in bulk. Here, all the raw materials which give the liqueur its distinctive properties are gathered together, and are processed in large copper stills, to release their essential properties. The exact constitution of the distillate is, of course, a jealously guarded secret, known only to members of the Le Grand family, but it is in the distillation room that the results of these secret ingredients, all carefully proportioned, are mingled to form the active principle of the liqueur.

Raw Materials

Although the exact nature of all the ingredients, and in particular their proportions, is never disclosed, there is no secret as to the general nature of the elixir. The herbs are grown in fields around the town and on the cliff-tops, where they flourish in the strong sea air, and twice a year, when they are in flower, they are gathered carefully by hand, and after being sorted and tied in bunches, they are taken to an extensive drying shed, situated in the fields themselves. When required, they are taken to the factory and placed in wooden bins with hinged lids, which are housed in a large store-room, each item having its own separate bin. Although these locally grown herbs form a large proportion of aromatic principle, and include such familiar names as angelica and hysop, other constituents are obtained from outside sources. Amongst these are such diverse items as tea and muscatels, which are also stored in the wooden bins, to provide a complete inventory of the herbal content of the product. When distillation is to take place, quantities of these herbs, every one weighed to its correct proportion, are placed into wooden boxes fitted with handles, which are then taken manually to the distillation room.

Apart from herbs, two of the main ingredients appear to be honey and sugar, and these meet the herbs in the distillation room. Honey is imported from the U.S.A., and arrives in large rectangular tins, each containing 60 lb (27 kg). These tins are handled manually, and the contents are tipped by hand into a mixer. Sugar arrives in bags, and is palletized, being carried on two-way entry, reversible





softwood pallets. These pallets are handled by Elwell Parker 2-ton electrically operated fork lift truck, and Fig. 3 shows one of two such trucks in operation. The illustration covers part of the distillation room, with stills and mixers, and called forward supplies of sugar being placed on a mezzanine floor, to await actual use.

In addition to the honey and sugar vats, and the distilling apparatus, the distillation room also contains huge casks, each with capacities of 3,080 gal (14,000 l), in which the distillates of herbs are matured. When this part of the process has been completed, the liqueur is piped to the cellars, where blending takes place.

The Cellars

The extensive cellars are situated under the Court of Honour, which forms the main entrance to the building and which can be seen clearly in Fig. 1. These cellars contain numbers of enormous casks, fixed in position, and interconnected by pipe-work. The piping is painted in differing colours in accordance with a colour code, in order to identify its varying functions, and the liquors which it carries are delivered by air pressure. Certain of the casks

contain the distillate from the distillation room, and others contain cognac, received from outside sources; in passing, it is interesting to remark that it is regarded as essential that the cognac casks should never be allowed to become completely empty.

The blending of the liquors is carried out at this point, and is scientifically and meticulously controlled. Immense care is taken to ensure correct maturing and blending, with its consequent uniformity in the gravity and other properties of the end product: it is here that the two types of Benedictine are finally produced.

The Bottling Room

After the blending and maturing processes have been completed, the liquid, now of course Benedictine proper is piped to the bottling room.

The bottling room reflects the generally ecclesiastical aspect of the building in spite of its secular function, this resulting largely from the design of the roof, with its wooden beams and decorated ceiling, and the large window at one end, with its ornamental clock at the centre. This long and lofty room is well suited to its function, however, and its

good natural lighting is supplemented when required by fluorescent units carefully spaced. It also has an up-to-date air conditioning system, and the whole operation can be viewed conveniently from a gallery running along one side of the room, to its full length. A general view of the bottling room is shown in Fig. 2.

On entering the bottling room the liqueur is carried to the three bottling machines. These are situated at one end of the room, under the great window, and are shown in Fig. 4.



Fig. 6. Artist's impression of the buildings at Fecamp where Benedictine is produced

A male operative attends to each machine, which are by Chelle of Paris: the central unit was a prototype, the others being installed later, after tests.

The bottling machines are fed with empty bottles which reach the factory on wooden trays, carried by motor transport. The bottles are stacked solid in the bottle store, whence they are taken on four-wheel trolleys to the rinsing machine, La Gironde Hydro, supplied by Etablissements Larnieu of Bordeaux. After thorough rinsing they are taken into the bottling room on a special chain conveyor by Simplex, each bottle being carried upside down on a peg. Bottles are taken off the conveyor by hand for charging the machines, which fill and cork, and also keep count of the

numbers handled. The filled and corked bottles are then carried on a transverse flat belt conveyor, through a warm water wash, and a moderate drying oven. Returning, the bottles pass the ends of the two main conveyor tables, which run the whole length of the room. At the head of each table, and on either side, sit female inspectors, who pass each bottle behind a large lens and under a strong light, which assists them to observe any faults at this early stage. These inspection points are shown in Fig. 4 which also illustrates their position in relation to the filling machines.

The two main conveyors are of particular interest because of certain unusual characteristics. Manufactured by Simplex of Paris, they run the length of the whole bottling room, with a work table on either side of each one. These tables accommodate approximately 20 female operatives on either side of each table, giving a total of 80 work positions. The carrying surface of the conveyor is made up of metal plates coloured yellow, red, green and blue in series. Each square carries one bottle only, and each operative is concerned only with bottles on squares of one particular colour, so that the operative responsible for processing any particular bottle is readily identified at the final inspection point. In addition to this obvious value of the brightly-coloured squares, the management assert that the varying colours are restful to the eyes of the operatives, and reduce fatigue.

At this point the lead capsules are placed by hand on the already corked bottles, and are compressed in position by a capping machine supplied by La Telemecanique Electrique.

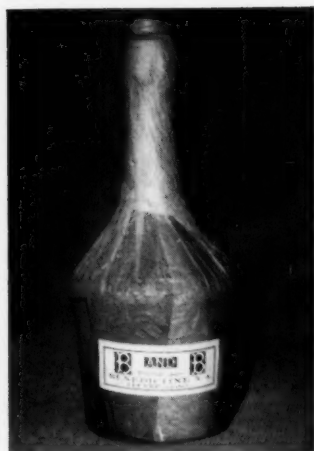
After the capsules have been fixed in position, the hand labelling process takes place, each bottle carrying labels certifying that it contains only the genuine Benedictine liqueur. After labelling, the bottles pass through an infra-red drying tunnel, manufactured locally. On emerging from the tunnel, the two wax seals are affixed, the liquid wax being deftly applied by hand, and stamped with the arms of the Abbey. To dry the wax, the bottles pass through a further infra-red drying tunnel, also of local manufacture. On emerging from this second tunnel, bottles are inspected, and wrapped by hand in a special paper known as silk paper. The paper, printed in English, French, German, and Chinese, proclaims the authenticity of the contents and is wrapped round each bottle with very considerable dexterity, by the operatives, the final twist of paper being settled ingeniously on the top of the capsule in a highly characteristic manner.

After a last inspection, bottles are placed on a transverse slat conveyor, one bottle in width, which takes them out of the bottling room, and into the packing room. Before leaving the bottling room, mention must be made of the attention given to flagons and bottles of smaller-than-standard capacity. These are dealt with in batches and are processed at circular metal tables, which are painted in segments to match the colouring of the conveyors. The same meticulous care is taken with these smaller units, but movement of items is manual by trolley, carrying wooden containers. The coloured tables combine with the coloured conveyors to give a bright and cheerful air to an already well ventilated and well lighted area.

Cases and Cartons

Before describing the packing room, we must turn to the carpenters' shop, where timber for the cases is cut and shaped. This well equipped section of the factory contains a number of band-saws by Panhard Levassor of Paris, in addition to the usual planes and ancillary machines. The raw material is brought into a reception bay on motor vehicles, and the case sections are finally carried by conveyor to the ultra modern storage room, as illustrated in Fig. 5.

This remarkable storage room has a floor space of 1,600 sq. ft., and is lighted from above by 35,000 small rectangular panes of glass set in the curved concrete roof.



Figs. 7a and 7b. Benedictine is of two main kinds: the traditional type shown unwrapped, and the more recent variety known as 'B and B' or 'cachet or'. Bottles are wrapped by hand, and great importance is attached to the characteristic twist of paper on the capsule, as a mark of authenticity (photographs by the author)

The result is an airy and excellently lighted space of ample proportions, which contains cartons, in their collapsed state, and the timber sections required for ultimate assembly into cases. These are both stacked solid, as shown in the illustration, and when required, are placed on the conveyor which is to take them to the packing room. Cartons or cases are called forward in batches, according to the original requirements of the order department. Cartons are erected, ready for filling and are wire stitched by Rapidex stitchers, but cases continue in sections. Before entering the packing room, these sections pass two nailing machines by Fere, Maubeirel, Seine, where they are erected and nailed together ready for filling.

On reaching the packing room the cartons and cases each have their own conveyor. Bottles are placed manually into the containers and cartons and are sealed by a Chenille machine, supplied by Gonzague Hermier of Marseilles. There is then a static work point, where the cartons are steel banded. At a similar point on the case-carrying conveyor, there is a further nailing machine, which secures the lid to the case. Both conveyors continue, out of the packing room to the despatch loading bay.

Cases and cartons awaiting despatch are palletized on softwood reversible pallets, as used for the bagged sugar, and the second Elwell Parker fork lift truck is used at this point. Consignments from distant destinations are packed in railway containers, which are taken by Far mechanical horse to the rail head. The transport fleet itself serves less distant destinations and Fig. 8 shows two of the vehicles in use.

Conclusion

This, then, is the general story of how Benedictine is produced. There are many side-lights which would repay elaboration, such as the arrangement and equipping of the transformer-room supplying electricity to the whole factory, which was laid out and is still supervised by M. Pierre Le Grand. There was the splendid function to celebrate the decorating of the present M. Le Grand with the Legion of Honour, when the great hall and the whole building came to life.

Mention might be made of the marketing methods and the excellent publicity carried out in many languages including Chinese. It would also be interesting to pursue the conviction, widely held in China, that drinking Benedictine not only increases fecundity, but is almost a guarantee of male off-spring, a conviction which is apparently referred to in the Chinese characters shown on the wrapping of every bottle.

But perhaps enough has been said to illustrate the care taken to preserve the qualities of Dom Bernardo's elixir, and the mechanization employed in its compounding, which permits an ever-increasing number of consumers to echo the ancient recommendation of the King of France.

Fig. 8. Part of the road transport fleet. Rail consignments are packed in rail containers and unit loaded at the rail head





Fig. 1. General view of the Lyons' carton production plant, showing the two main overhead waste materials conveyors above the line of nine printing and cutting machines

SIMPLIFIED CONVEYOR DRIVE

Application of the Thorite Drum for Handling Waste Material

By P. M. Sanders, M.I.Mech.E., M.Inst.T.

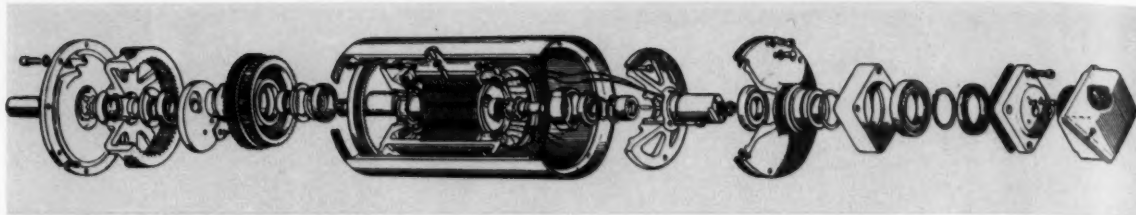
HOWEVER efficacious in saving time and labour and increasing the rate of output, the installation of mechanical handling equipment in factories, warehouses and elsewhere usually introduces additional maintenance and servicing responsibilities, may reduce available floor space and, in the event of serious breakdown, substantially curtail activities in one or more departments. This applies more or less to various conveyor and elevator drives, installed as either additional or adjoining units, with direct or indirect means of power transmission. The elimination or reduction of such restrictive factors can obviously be achieved by locating the power unit within one of the conveyor or elevator drums, using a form of transmission proved to be slow-wearing and impervious to derangement without routine maintenance and by making provision against overheating and for infallible lubrication of all moving parts and enclosing the whole assembly against the ingress of dirt and moisture.

These features are combined in the compact design of the Thorite integral conveyor head drum recently introduced by the Richards Structural Steel Co., Ltd. It is available for a very wide range of applications as there are 13 different

models. The smallest is fitted with one of five electric motors varying from $\frac{1}{4}$ h.p. to 1 h.p., with maximum output torque of 65 lb/ft, giving standard belt speeds of 25-170 ft/min, speed range of 4-170 ft/min, weighing approximately 92 lb to 122 lb, and with drum dia of $7\frac{1}{2}$ in and face width of 15 in to 26 in. The largest model gives a choice of four motors of $7\frac{1}{2}$ h.p. to 15 h.p., with maximum torque of 1,465 lb/ft, belt speeds of 156-684 ft/min, speed range of 10.5-684 ft/min, weight of 647 lb to 848 lb, drum dia of 24 in and face width of 38 in. There is also a choice of 18 dimensions for other features of all models.

Each power unit consists of a 3-phase stator rotor unit built within the drum to which it is geared internally by an epicyclic gear train. It is thus only necessary to install the drum at the driving end of a conveyor or elevator and connect an electrical supply to the junction box at one end. The gearing is precision-machined from Meehanite or spheroidal graphite iron. The compound and final gear wheels run on matched pairs of taper roller bearings and compensation is made for out-of-balance forces.

The standard drum shell has a crowned face, and the end housings form oil-tight chambers holding a suitable



amount of oil free to circulate through available spaces in the stator rotor unit and gears. The oil thus lubricates the working parts and bearings and acts as a coolant for the motor, the windings of which are dipped in epoxy resin. The standard stator rotor units are wired for Class E insulation for a maximum temperature rise of 65 deg C, at the windings in a maximum ambient temperature of 40 deg C. Heat generated by the motor and gearing is also dissipated by the belt in contact with the drum. The motor leads are taken out through a specially sealed opening in the fixed shaft to the junction box. The only point between the shaft and rotating drum through which oil could escape or foreign matter enter is closed by an efficient oil seal.

With this form of construction the drum, in view of its compact size, can be readily installed in different locations, has no exposed working parts needing guards, presents no difficult installation problems, eliminates common causes of electrical and mechanical breakdowns, has no separate parts to get out of alignment and cause excessive wear and should require no maintenance.

Fig. 2. Underview showing positions of the motorized drums of the main and cross-conveyors, electrical connections and cross-conveyor traversing rope pulley

Fig. 3. One of the encased vertical elevators feeding a cross-conveyor with control box on the right

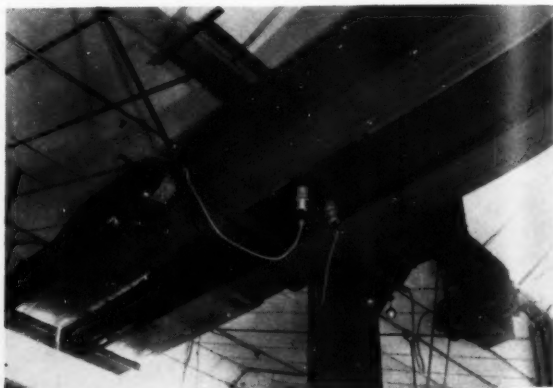
Fig. 4. Delivery ends of the two main conveyors depositing carton waste material into the receiving bin for final disposal



Fig. 5. Exploded view of Thorite motorized drum

The space-saving advantage of the Thorite motorized drum and the unobtrusive appearance of a conveyor system to which it is applied are immediately appreciated on entering the new carton factory of J. Lyons & Co., Ltd., where an installation is in continual operation conveying the waste material from the carton printing and cutting machines and depositing it in a brickwork bin in an adjoining building from which it is transferred by hand to a baling plant for final disposal.

There are in all 22 drums included in an elevating and overhead conveyor system manufactured and installed by Davis Industrial Equipment Co., Ltd. The main conveyors are at a high level above a line of nine machines, some producing coloured, and others, plain, cardboard cartons. In order to separate the plain and coloured cuttings, there



are two parallel lines of longitudinal Balata rubber belt conveyors, each divided into three sections driven by separate motorized drums and fitted with tensioning devices.

The load carried by each conveyor becomes progressively greater as it is fed successively with the cuttings from the nine machines. This is dealt with by increasing the widths and travelling speeds of the belts in the second and third sections. Those of the first sections are 40 ft long, 8 in wide and are driven at 125 ft/min. The second sections are 52 ft long, 10 in wide and travel at 150 ft/min. The third sections are of different lengths, 70 ft and 65 ft, as they deliver at two positions into the divided receiving bin. Both are 12 in wide and run at a speed of 170 ft/min. The drums operating the final conveyors, which carry material from all nine machines, are fitted with 1-h.p. motors, while those for the other four main conveyors have $\frac{3}{4}$ -h.p. motors. In addition to its comparatively simple construction, an important feature of this conveyor assembly is its light

weight. For example, a complete motorized section 40 ft long with a 10-in belt weighs approximately 8 cwt.

The cuttings fall from each machine on to a horizontal conveyor belt which is passed round idle drums to rise vertically inside a duct. At the top it runs horizontally again to pass round a $\frac{3}{4}$ -h.p. driving drum and deposits the cuttings on to a cross-belt conveyor. The latter is carried and driven also by a $\frac{3}{4}$ -h.p. motorized drum on a sliding carriage traversed by means of a pull-rope passing round a pulley so that the cuttings can be fed on to either of the main longitudinal conveyors.

A patented system for effectively retaining the cuttings on the vertical section of the belt is adopted.

The whole conveyor system is silent-running, requires a minimum of attention and causes no obstruction to the workers in charge of the machines. The sections of the system are individually started and stopped by push-buttons from control boxes, one adjoining each of the nine machines, installed by M.E.T. Control Gear, Ltd.

ULTRA-MODERN MILL IN NORTHERN IRELAND

ONE million pounds is the approximate cost of an ultra-modern mill situated near Lisburn, just 10 miles from Belfast, Northern Ireland, which is solely devoted to the production of processed feeds for livestock. The new Knockmore Mill belongs to J. Bibby & Sons, Ltd., Liverpool, who have undertaken a considerable amount of research before commencing to erect their ideal. It is claimed that there are many milling organizations in Northern Ireland, but the Bibby enterprise is the only one that collects its own raw materials from Belfast Docks, and subsequently delivers its own manufactured products direct to the farmer's holding.

Most of the equipment within the 9-acre mill site has been produced and erected by many competitive firms. Some of the equipment is to Bibby's own design; their weighing machine controlled feed system is believed to be the most advanced of its kind.

Aldersley Engineers, Ltd., have supplied and installed all the inter-communicating conveyors between the various sections of the mill.

The main intake storage silo is an Aldersley 'Nestbin' construction and comprises 24 bins, 12 of which provide 1,200 tons of grain storage and the remainder, 840 tons of cake storage. Each bin is 10 ft square and is fitted with completely self-emptying hoppers. The height from floor level to the top of the bin walls is 52 ft 7 $\frac{1}{2}$ in. This was supplied as a completely self-contained installation, including roof, walk-ways and all requisite conveyors and elevators.

The twin-intake, grain and cake, and conveyors, which have a 30 ton/hr capacity, carry their respective materials side by side, either to the chosen 'Nestbins', or direct to the pre-treatment or production sections.

Before reaching the 'Nestbins', the material is carried up 44 and 33 ft high, grain and cake respectively, bucket elevators and discharged through magnetic chute separators. Here, all metal objects are withdrawn from the material.

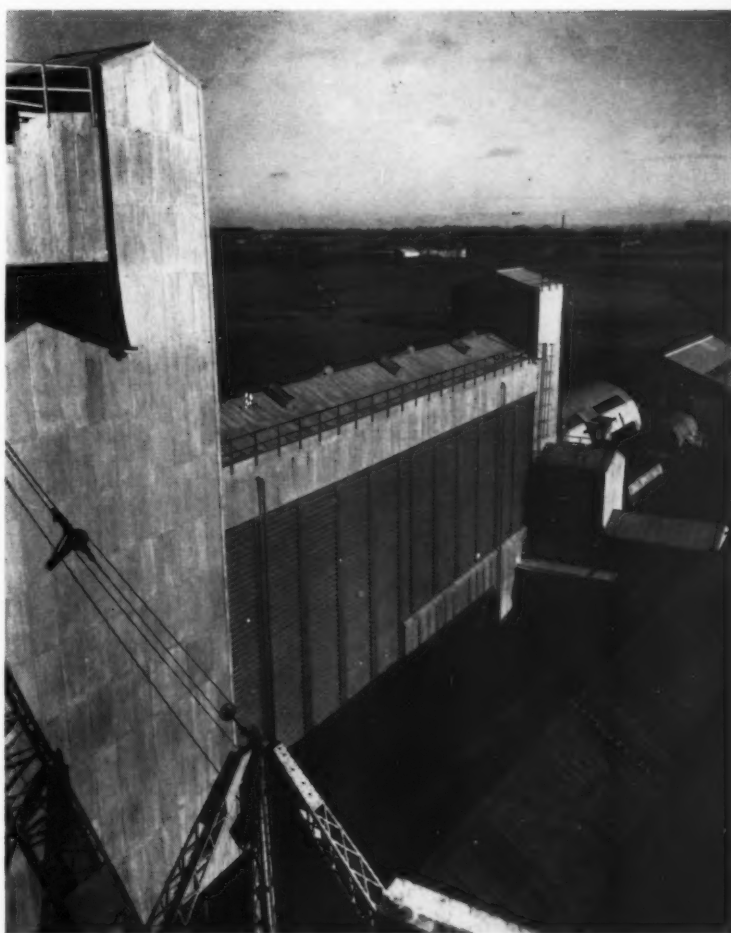


Fig. 1. Outside view of part of the new mill situated near Lisburn



2

The downward journey of the grain has to pass a rubble separator, where stones and the like are side-tracked into a short outlet. Meanwhile, the cake passes through a buffer bin as a preliminary storage, before passing through the Gannow disintegrator.

Having reached their full journey down, both materials have to travel up again in 76-ft high bucket elevators, whereupon they are fed on to the overbin worm conveyors. The overbin worms each 150 ft long are driven at each end and, therefore, have the worm in two half lengths of 75 ft. Both motors and drives of each full-length worm are synchronized to start and operate as one.

Under each row of 'Nestbins' a two-way chain conveyor is provided which feeds towards the production sections or re-circulates the material back to the 'Nestbins' via the 76-ft high elevators and overbin worms.

Both grain and cake are now directed into one of three flow-systems. Firstly, the material moves up the 110 ft high bucket elevators and across the bridge, via 84 ft long 'Gardiner' type perforated belt conveyor, to the production sections.

Any of the three ways of flow can be fed into the proportioning bins of the coarse dairy products section, or into one of the 24 bins of the ground products section. Cut-and-skip hoppers are provided in these two sections for the

intake of material without going through the Aldersley silo. Again, magnetic chute separators are fitted to the elevator header.

Materials stored in the bins for the coarse dairy products section travel on Aldersley conveyors and elevators to reach the final bagging stage.

The same applies for materials in the ground product bins, until it reaches the grinder intake bins. After passing through any one of the four sets of grinder plants, the various granular materials join a 45-ft long perforated belt conveyor into the 38-ft high bucket elevator. Thence, it travels along another perforated conveyor over the production intake bins.

Final production is the end of the Aldersley inter-communicating conveyor system, but others take up the flow to the molassed meal plant, the cake and pellet section, or to the cake, pellet and crumbs unit. Finally, the bagging and automatic stitchers are reached where the dispatch section takes over.

Aldersley also supplied and installed the two 43-ft perforated belt conveyors beneath the pre-treatment product bins, as well as the chutes which by-pass the semi-automatic weighing and bagging units and re-direct the material to the proportioning bins.

Griffin, Smith and Partners were the consulting engineers behind the entire mechanical handling and flow system. The civil engineering contractors were Sir Bruce White, Wolfe, Barry and Partners.

Fig. 2. This underbin conveyor takes the stored material along its first journey to the production end of the mill

Fig. 3. The new mill has two unusually long overbin worm conveyors, each is 150 ft long and is driven by two electric motors. The intake conveyor and elevator system handles up to 30 ton/hr



3

TRACK RECONDITIONING PLANT

A DEPARTMENT for the complete reconditioning of all types and sizes of tractor tracks is now in full operation at the Windsor depot of Fred Myers, Ltd. Among the many items of special-purpose equipment installed there is an L & B track link welder which is used for rebuilding track. This machine gives electronically controlled submerged arc-welding with twin heads, with resultant high-quality accurate rebuilding at high speed.

Before the track is laid out on the bed of the L & B machine it is thoroughly cleaned on the surfaces that are in contact with the bed, that is on the bolting faces or grouser edges. When the track is laid out on the bed it is carefully set up to ensure true alignment and to avoid all kinks or curvatures.

Wooden blocks are inserted in the spaces between the bushing in order to conserve the agglomerated flux. Alongside and parallel with the bed of the machine are fitted 'interrupters', the pattern of which is varied according to the type and size of track on the bed. These interrupters serve to



Fig. 1 (right). General view of the track recondition department. The L & B welder can be seen left and the twin-ram track press centre

Fig. 2 (below). Welding a new sprocket rim to an existing hub



control a photo-electric cell device as the welding heads move along the track which in turn operates the electronic equipment controlling the welding period.

When the interrupters have been adjusted and the wire feed and travel speeds set, the machine is set in motion and continues to operate automatically until it reaches the end of the track. If badly worn links exist with serious depressions in them the first operation is to restore them to flat surfaces. On completing this operation the weld head passes along the track depositing on each pair of links a bead of weld approximately $\frac{3}{8}$ in wide by $\frac{1}{8}$ in deep, these dimensions vary according to the weld pattern required. On completion of the first pass the welding head is returned to the opposite end of the carriage where after moving the wire nozzles inward, the welding process is recommenced. This operation continues until the track links are covered with a weld of uniform depth.

Most tracks require a second layer of weld before the original height of link is reached. The weld process for the second layer is the same as that of the first layer and where tracks are very badly worn it may be necessary to apply a third layer.

If the track for rebuilding is received with grouser shoes fitted, the operation on the L & B welder takes place without their removal. On passing to the track press for repinning and rebushing or turning, the plates, if they are to be rebuilt are removed. If a turning operation only is required, two bolts only need to be removed instead of four and this is carried out on a Rogers twin ram track press. This works on the basis of having a central anvil against which the link is offered, each ram has a push beam fitted to deal with pin

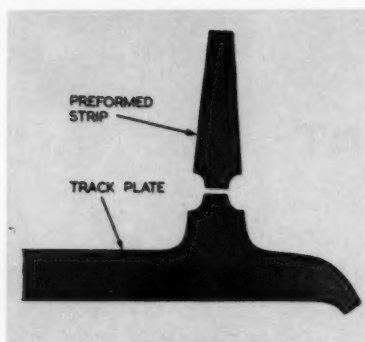


Fig. 3. Triple-bar grousers are rebuilt by welding steel bars on top of worn stubs

pushing and bush pushing in one movement. The distance travelled by the ram is no more than a maximum of 3 in, which is sufficient to push the pin and bush clear of the link. A particular feature of this press is the rapid approach and retraction which together with a powered conveyor greatly speeds up track repair.

When the track links are ready for assembly the pin, complete with bushing, is laid in the anvil and by one operation both left- and right-hand links are pressed on simultaneously. In assembly the links are pressed on to pin and bush, which continues until the track is assembled to its correct length.

Limiting nuts which are adjusted for each type of track prevent links being pressed too far, and at the same time

accurately space links in readiness for plate fitting.

Roller Rebuilding

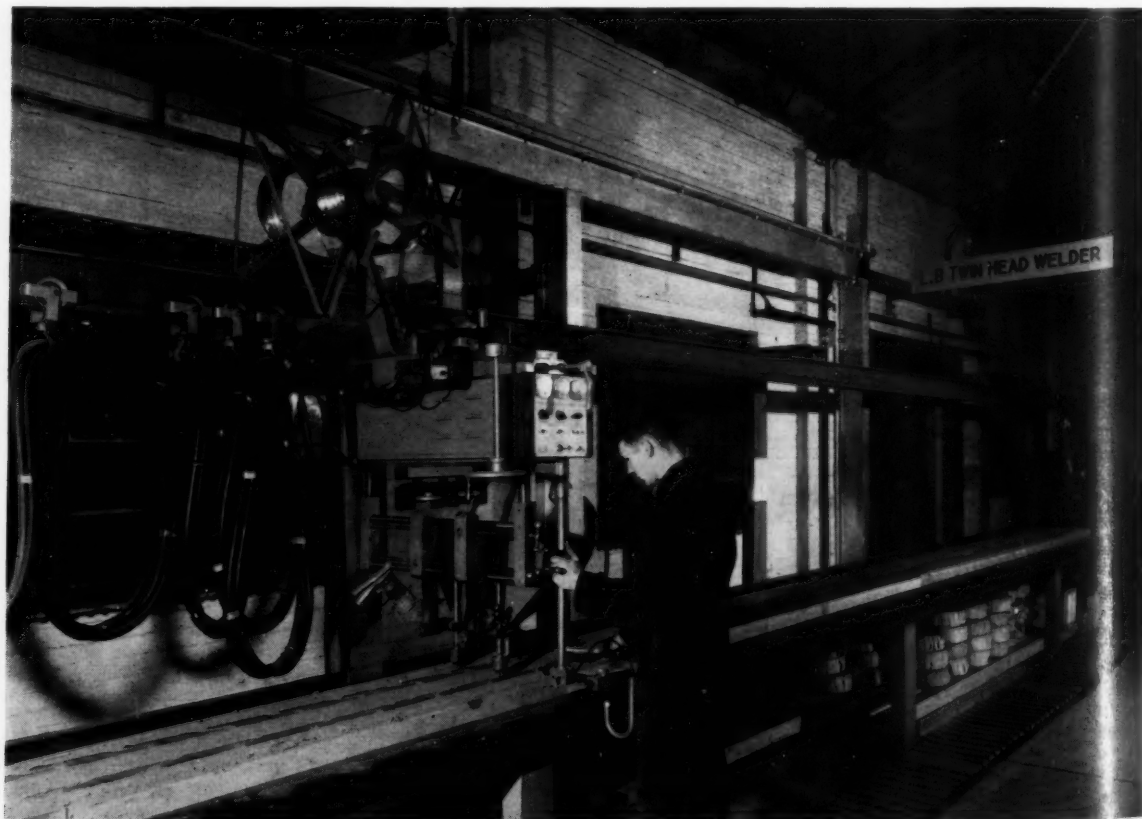
All track rollers and idlers are rebuilt on the automatic submerged arc machine in the new department. A combination of rotation with feed speeds produces a finish which is quite satisfactory for tractor operation, without machining the threads. Small size rollers may require turning because of the difficulty in applying a neat continuous weld caused by insufficient parent metal to dissipate heat.

Rollers and idlers are rebuilt on a production line system involving nine operations: stripping; cleaning; inspection; submerged arc rebuilding; tapping capscrew holes; fine boring; reassembling; final inspection; painting.

All grousers for rebuilding are first trimmed on a profile cutter. This is necessary on hardened grousers where satisfactory welding can only be accomplished by welding under the limit of hardness. The correct size of preformed welding strip is then selected, one of three, and after being cut to approximate length of the shearing machine it is 'tacked' into position. Submerged arc weld is then applied to both sides of the strip and the grouser brought back to standard dimensions.

For the repair and reconditioning of components associated with track, there is a general welding section within the department which undertakes oxy-acetylene cutting and welding and hand arc welding. Work undertaken by this section includes sprocket re-ribbing which requires great accuracy to ensure true alignment with track and concentric rotation. Sprocket rims for welding on to existing hubs are now available for all sizes of Caterpillar tractors.

Fig. 4. Rebuilding track on the L & B twin-head electronically controlled welder



EXACT VOLUME ROTARY FILLER

A new 6-head unit can fill

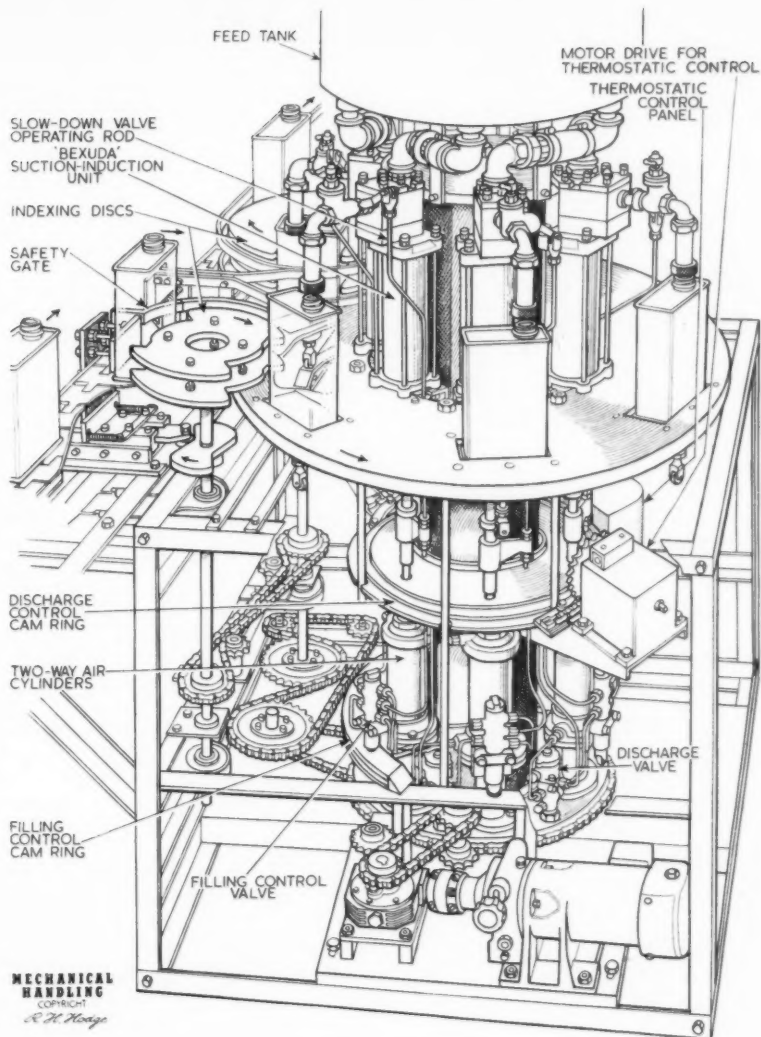
80 cans a minute

THE 'BEXUDA WAY' exact-measuring instrument can handle liquids or near solids ranging from spirit to the heaviest of grease and even food products like mincemeat and Christmas pudding. The size of models available ranges from the midget, which has a capacity range of from nil to a maximum of $\frac{1}{2}$ oz., up to a complete set of models having 5 gallon capacities and 12-in bore cylinders. The artist's impression shows here the latest product from the works of Becker Equipment & Lifts, Ltd., Alpertons, Wembley.

There is nothing new about filling containers on a rotary machine. These machines are generally known as vacuum rotary fillers because the containers to be filled are filled merely to a level determined by vacuum, but this does not necessarily mean that the contents of the container are exact, because of the variance of space within the vessel which is determined by possible variations in the container itself. The Bexuda rotary machine, on the other hand, fills to an exact pint, quart, or any other selected quantity. The time is approaching when the Board of Trade, Weights & Measures Department, may well demand that all containers below a certain capacity are filled to a measured quantity within the meaning of the Act, not just a bottle, tin or box full.

It will be seen from the illustration that on this new unit there are six suction induction units on the Bexuda principle, mounted on a six-sided column. These units are operated by six double-acting air cylinders which can be seen below the circular table. On the latter, located directly underneath the delivery nozzles, are the six containers to be filled. These containers are fitted into their relative position by passing them along a conveyor which feeds each one into the indexer at the exact moment that the recess in the table matches up with the container feed. It has been found that this process can be done as fast as 80 cans a minute. If there are six cans on the table this means that the rate of filling and delivery at the other end of the conveyor is nearly 5,000/hr. This speed can be reduced to as low as 1,000/hr because F. W. Becker, the designer, has arranged to drive the whole unit by means of a variable speed gearbox unit manufactured by Allspeeds, Ltd.

There were many problems in producing this rotary machine because it is primarily operated by air and yet has to have an electric supply for the motors which are to drive the gearbox, the conveyor feed, also the micro-switches and the torque motors. The last two items are, of course, rotating and have to be fed from a static electric supply. It can also be seen that there was an added complication

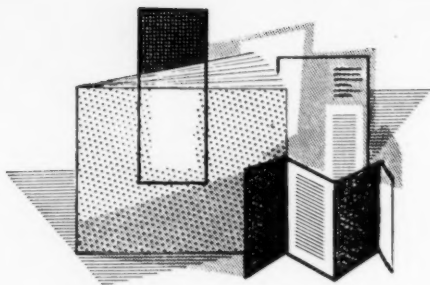


Artist's impression of the new Bexuda 6-head exact-volume rotary filler

that as the machine rotates round the natural pivot which includes the oil tank, it was essential to ensure that the level of liquid in the tank must remain constant from a static supply line.

Shell-Mex & B.P., Ltd., have already purchased a 4-head 1-gallon fully automatic Bexuda. The machine is working at their installation at Barton, Manchester, and for some months past has been filling cans at speeds up to 1,000/hr. The original specification demanded that temperature compensation through a range of 120 deg was essential because without such compensation it was possible to give short measure. However, a means to automatically vary the capacity of each of the four Bexudas was devised by increasing or decreasing the volume of oil when the temperature varied from 50 to 170 deg F. The detailed manner in which this was overcome is too long for an explanation here, but the main issue is that the final machine works to the specification of the customer and has resulted in their placing an order for one of the new rotary machines.

It may interest many readers to note that the actual machine to be supplied to Shell-Mex & B.P., Ltd., which will fill to an exact volume and not by vacuum level, will be on display at Stand No. D8 at the Mechanical Handling Exhibition.



ABSTRACTS AND REFERENCES

Articles on mechanical handling published in all technical and industrial journals of the world are indexed and abstracted below. Whenever it is known, the published price of the journal containing the article is given.

The addresses of the publications concerned are given and applications for copies of the journals mentioned should be made direct.

NEW SHIP-LOADING METHOD

Side-Loading Cargo Transporter. *Cargo Handling*, Rosebery House, 8 Bream's Buildings, Fetter Lane, London, E.C.4. February, 1960. P. 201. 2s. 6d.

A departure from the conventional method of loading a ship through deck hatches is by the use of the side-loading transporter described which passes through the vessel's side. It consists of a boom mounted on rollers within the ship and having a moving carriage housing the hoisting and traversing equipment. Controlled by an operator in a cab attached to the carriage it gives a clear view of the cargo platform at all times. In port, the boom is run out so that one end is over the quay. The other end is then over the cargo hatch where it is fixed throughout the loading operation. With the carriage over the quay, the cargo platform is lowered into the loading position. The loaded carriage is then traversed inboard and the cargo platform lowered down to the appropriate deck. The boom and carriage are stored in the hold during a voyage. By eliminating deck hatches this transporter saves valuable space. Speed of cargo handling and preparation of the equipment in port is considerably improved, only one operator is required, and loading operations may continue under adverse weather conditions. The operator and cargo are protected from the weather and there is less deterioration of the equipment as it is not exposed to the elements at sea.

INCREASING USE OF CONTAINERS

A Revolution in Transportation. *Material Handling Engineering*, 812 Huron Road, Cleveland 15, Ohio, U.S.A. February, 1960. Pp. 97 and 110.

In a talk given at the 5th Annual Worldwide Handling and Packaging Conference Mr. Glen R. Johnson, marketing manager of the Clark Development Division, Clark Equipment Co., referred to the rapid increase in the use of containers due to the development of larger capacity mobile handling equipment. He pointed out that containers move more material per unit of effort and manpower, make handling cheaper, protect against wilful damage and theft, will probably lower insurance rates and may lead to changes in tariffs. They are of military interest as they protect products, save warehouse space and handling labour, store in the open, are useful for advanced supply depots, and simplify logistics and paperwork. Their wider use also presents problems to be considered, such as high initial investment, extensive

record keeping, possible obsolescence through new design, and cost of maintenance. Obstructive factors are failure to accept standards, lack of a universal locking or tie-down device for van containers, which limits transfer and interchanges among carriers, labour and carrier resistance.

FOR INCREASED CONVEYOR LOADS

Conveyor Belts for Use with 45-Degree Idlers. *Power Engineering*, 308½ James Street, Barrington, Illinois, U.S.A. February, 1960. P. 106.

Greater payloads and other advantages are attributed to a new heavy-duty conveyor belt particularly adapted for operating over 45-degree troughing idlers. Its construction is doubly compensated so that the outer ply stretches as the inner ply contracts under both lateral and longitudinal flexing, even on reverse bends. Outer-strength-member plies are made with a high-strength synthetic fabric of controlled elasticity to relieve stress on the belt as it travels over idlers and terminal pulleys. Initial cost is saved because narrower belts and conveyor equipment haul the same loads as belts on 20-deg idlers. There is also less spillage.

HEAVY-DUTY BEARINGS

Spherical Roller Bearings. *Design News*, 3375 S. Bannock, Englewood, Colorado, U.S.A. February 1st, 1960. P. 42.

Besides being self-aligning and accommodating heavy radial and shock loads, the new spherical bearings described will also sustain substantial thrust in either direction. The rollers and races are super-finished for long life and good performance. There are two rows of rollers within a single spherical outer race to permit shaft misalignment in any direction, initially or under load. Roller guidance is assured by a heavy centre-guide flange between the two inner races, asymmetric roller design and bronze, land-riding retainers.

V-BELT DRIVE IMPROVEMENT

High-Capacity V-Belts Save Weight and Space. *Design Engineering*, 481 University Avenue, Toronto 2, Canada. February, 1960. P. 72.

A new line of V-belt drives is said to save space, weight and cost by using smaller and lighter sheaves and V-belts of high capacity. Stronger metal is used for sheaves and synthetic rubber and fibres for the belts. The majority of industrial drives can, it is stated, be handled with belts only $\frac{3}{8}$ in wide, and sheaves greatly reduced in width and diameter. The drives are offered in two standard groove

sizes to meet all except the largest industrial requirements.

ADJUSTABLE LOADING RAMPS

Hydraulic Ramps. *Design Engineering*, 481 University Avenue, Toronto 2, Canada. January, 1960. P. 72.

Vertical, horizontal and lateral adjustment by hydraulic cylinder operation under push-button control is the special feature of a new series of American vehicle loading and unloading ramps described. They are now also manufactured in Canada. To load a vehicle from a loading dock, the ramp is first raised vertically, aligned laterally and then extended horizontally to overlap the vehicle's tailboard, thus eliminating time wasted in manoeuvring the vehicle into alignment with the dock. Even if the vehicle is at an angle to the dock, independently movable fingers compensate the difference. Once in position the ramp automatically adjusts itself to changes in the vehicle's attitude due to depression or expansion of the springs.

BAR FEEDING AND HANDLING

Reeling Made Safer by Automatic Feeding. *Engineering*, 36 Bedford Street, London, W.C.2. January 29th, 1960. P. 172. 2s.

The dangers of reeling round bars, particularly due to whipping, are said to have been practically eliminated by the use of new semi-automatic equipment which requires only one semi-skilled feeder to control. It feeds round bars of $\frac{3}{8}$ in to 1½ in dia and extracts and ejects the reeled bars from the output end of the machine. It can handle a 2-ton load of bars which is deposited on separate rails by an overhead crane. The whole handling process is described and an illustration is given of an actual installation.

5½-MILE CONVEYOR

Largest Cross-Country Belt System. *Midwest Engineer*, 84 East Randolph Street, Chicago 1, Illinois, U.S.A. January, 1960. Pp. 25-26. 50c.

The Ideal Cement Co. have recently put into operation an all-weather belt conveyor system 5½ miles long which is said to be the world's longest permanent conveyor system and also the first major conveyor to be supported by prestressed concrete structures. It carries 1,000 tons of crushed limestone per hour from the company's Lawrence, Oklahoma, quarry to its cement mill at Ada. The conveyor is in seven separate sections, arranged consecutively to feed on to each other. In its cross-country course through Oklahoma country it changes direction

(continued on page 347)

ABSTRACTS AND REFERENCES—continued

four times. It crosses two highways and the Frisco and Sante Fe railroads. Provision has been made at numerous points for the passage of cattle and farm equipment. The longest section, almost 2½ miles long and said to be the longest ever built, required an endless rubber belt 4½ miles long. Although it travels at the rate of 500 ft/min, this belt makes only 10 round trips during an eight-hour day. The shortest section is 550 ft long.

A single push-button puts the entire 5½-mile system in operation. When it is pressed, the conveyor closest to the mill starts immediately, and after its tail pulley has reached about half its normal speed, a relay starts the next section, and so on until the first conveyor at the quarry is running at full speed. The entire system is on a right-of-way strip averaging 100 ft in width and fenced on both sides throughout its entire length.

PAPER BY ROLLER

Productivity Runs on Roller Conveyor in this Factory. *Target*, 21 Tothill Street, London, S.W.1, February, 1960. P. 5.

If present performance is compared with the old, it is said that 20 per cent fewer workers handle 40 per cent more work since a new roller conveyor system was installed in the finishing departments at the Ely Paper Works, Cardiff, and an improved incentive bonus system was introduced. From the moment the piles of paper enter the department, work moves smoothly on its way to the despatch department. Previously, job placing and structural difficulties had limited the quantity handled and hindered progress. The roller conveyor system has ended these troubles. After the paper, which is stacked on stillages, has been checked, it is taken by electric truck to the sorters, who place the piles, on their boards, on the conveyors which start alongside them. They are conveyed to two counting points at the end of the sorting section where they are counted by an automatic machine and then to two guillotines for final cutting and trimming.

FLOUR BULK HANDLING

How Flour is Handled in U.S. Bakery. *Food Manufacture*, Leonard Hill House, Eden Street, London, N.W.1, March, 1960. Pp. 113. 3s. 6d.

Particulars are given of a flour bulk handling method adopted last year by the National Biscuit Co., Denver, Colorado, U.S.A., which uses 20 tons a day. Five rail cars, each holding 100,000 lb of flour, arrive every fortnight. They are unloaded through suction lines by a combination of suction and compressed air. The flour is then delivered along a feed screw through six nylon sleeves into six bins, each holding 2,800 lb. As these are filled, control panel lights indicate the direction of flow, and as each becomes full the flow is automatically diverted to the next one. When the last bin is full, the screw conveyor is automatically reversed and cleaned. A full bin is replaced by an empty one in less than 10 min by fork lift truck. In storage, the bins are stacked two high. When needed, full bins are taken by fork truck to a 6-tilt panel-controlled discharge point consisting of three double tilts, each handling one of three types of flour.

Bins are tilted to 45 deg for discharge, and when one is empty an automatic switch brings the next into operation.

STACKING LIFT TRUCK

Dual Platform Truck. *Material Handling Engineering*, 812 Huron Road, Cleveland 15, Ohio, U.S.A. January, 1960. P. 26. 75c.

Intended principally for stacking operations in narrow aisles, a battery lift truck, briefly described, has two platforms, a large one for the load and a small one for the operator. It will lift loads up to 2,000 lb to a height of 10 ft for transfer to racks with top shelf height of 14 ft. The truck can be steered only when the platforms are lowered; when they are raised the truck runs up and down an aisle, centred by side thrust wheels on the truck and guide rails on the floor. The operator controls its movements and elevates the platforms by push-buttons on his guard rail.

RECENT PATENTS

PAPER SHEET FEED

Schnellpressenfabrik A.G., of Heidelberg—U.K.819004.

A print gripper for handling paper sheets over a feed table to lay guides, using a reciprocating handler which avoids chain drive and uses crank and connecting rods instead to improve precision, the whole lying inside the machine frame size.

PAPER HANDLING

Faber & Scheicher A.G., of Offenbach—B.P. 819056.

Stacking of printed paper, using an exchangeable stack table which does not necessitate stoppage of printing. A cylinder operates with the sheet gripper and conveyor chains, to prevent forward stacking, whilst the table is moved away—giving especially satisfactory action with thin or limp material.

PAPER HANDLING

Stora Kopparbergs Bergslags Aktiebolag, of Sweden—U.K.819117.

A paper roll conveyor handler system comprises inflatable tubes, say four joined in a row, with perhaps edge guide strips, the paper being pushed along as the roll inflates.

BISCUIT MAKING

Baker Perkins, Ltd., of Peterborough—U.K. 819212.

Wafer biscuit sandwich making conveyors, using moving strip tables, gap closers, sandwich feeders and finally, removers. Levers move the strips and a chain overhead drive is used for the removal flight conveyor.

APRON CONVEYOR

O. Noe, of Duisburg—U.K.819326.

A design with series of pans secured to endless chains, etc., which is simple and easily dismantled, but so made that the bridge pans cannot drop out if short, or the

chain elongates, the pans being set with down-curved ends. The bridge pans have extension pieces under the bearer and carry cross pins for articulation, and any play is allowed at one end only of the pin, by means of holes, fork or spring.

CONVEYOR TRACK

Fisher & Ludlow, of Birmingham—U.K.819343.

Design for use with assembly work, having a positive drive in factory lines, a main aim being to ensure intermittent drive, with a pivoted dog, and a cam follower roller action, and positive stoppage, if need be to prevent back movement also. Patent 639244 is mentioned.

MOTOR WINCHES

C. A. Maine, of Paris—U.K.819512.

Uses a reversible pneumatic motor with a permanent brake released as the motor starts, the aim being easy access to cable on outside of the grooved casing and give positive hold of load at height.

TRUCK MAST

J. R. Sharp, et alia, of Basingstoke—U.K.819552.

Lift truck with straddle leg frame, and fork able to advance or retract under control—avoiding overturning. Preferably hydraulic systems are used with hand lever operating control, via lost motion connections.

BREAD SLICER

Package Machinery Co., of Massachusetts—U.K.819552.

Arrangement using constant drive band saws running round drums as cutters, which are flexible and constant in operation. They cut loaves diagonally and can be adjusted for slice thickness whilst working, and also used for varied loaf sizes.

TIPPER

Tatra Narodni Podnik, of Czechoslovakia—U.K.819569.

Arrangement for lorries, etc., with simpler springing, easier to make—using torsion bars which work for side or back movement.

RAIL TRACK ALIGNER

W. E. Krapp, of Pennsylvania—U.K.820801-2.

Equipment needing minimum labour, with equipment mounted on bulldozer type device with an anchorage, by boring into the soil, for use in levering the rails. The second device is mounted on the rail track with wheels which can retract on one side.

CONCRETE SKIPS

W. Williams, of Manchester—U.K.820829.

Form of tipping bucket used with crane, having simple U-shaped handle and trunnions with enlarged roller so disengagement cannot happen.

MULTI-STOREY GARAGE

M.A.N., of Nurnburg—U.K.820837-8.

Two trolley designs for pushing or pulling cars, etc., in parking bays, using swivelling entraining arms, in the first case which grip the pair of wheels on one side of the car to roll it. The second idea is arms which have rollers and can have motion-coupled, opposed acting thrust members which act on the rear wheels.

CEMENT HANDLING

M. Klinger, Jr., of Wiesbaden—U.K.820926.

Improvement on patent 786008 improves cement handling by compressed air—using a truncated cone form of air-permeable base of given size and dished shape.

INTERMITTENT DRIVE

H. Knaust, of Germany—U.K.820982.

Form of steelplate conveyor using intermittent chain drive, aiming to avoid jerking and uneven tension in the chain, by means of a set of roller supports for drive applicator belt.

TRANSFER DEVICE

Boxmakers Manchester, Ltd.—U.K.820984.

A pneumo-hydraulic system for two tables which gives self adjustment for transfer of flat paper or card sheets for stamping, etc., and can include a counting device.

CONCRETE SKIPS

A. Faure, of France—U.K.821004.

A scraper for pushing sand and gravel into concrete mixer skip feeds, using the slip lift cable with a winch association that the two actions succeed each other on the same cable and winch.

LORRY TIPPER

G. T. Baker, of Nebraska—U.K.821016.

Cheap small hydraulic tipper arrangement using linkage with first lever extending in downward path and taking equal power throughout path.

TRAY HANDLER

P. Pani, of Brussels—U.K.821034.

Improvement on patent 658834 with travelling crane to handle gas tower purifier trays, using a hydraulic seal, and sliding vertical one also, so that positioning of trays not too critical.

ROLLER AXLES

Untertage Maschinenbau G.m.b.H., of Recklinghausen—U.K.821051.

Conveyor roller axes have a resilient attachment, e.g. plate or tension springs to avoid wear and damage to support.

ROLLER SUPPORT

Untertage Maschinenbau G.m.b.H., of Recklinghausen—U.K.821051.

Form of axle support for steel trough band conveyor, with springs to allow arcuate movement.

BELT PRODUCTION

J. H. Ferrer & Co., Ltd., of Hull—U.K.821059.

A multi-ply textile, coated with rubber or p.v.c. over the solid woven material, somewhat as per patent 770524. Carbon black is added to the surface and gelled, to reduce the electrical resistance and avoid static problems, yet achieve good wear properties.

CAGE WINDING

Siemens & Halske A.G., of Berlin—U.K.821086.

Multi-deck cage winder with the deck plant locked until the cage is at banking level when the automatic release is operated—yet accidents are avoided by having two or more switches at different heights.

TRACK LAYER

Veb Kranbau Eberswalde, of Germany—U.K.821165.

Crane system running on rail track

trolleys for laying track even in long lengths or round curves, the supports being tiltable.

TRAILER TIPPER

D. Mackenzie of Auchingoul—U.K.821167.

Tractor trailer tipper system using cables, pulleys and levers.

BACKSHUNT

Qualter Hall & Co. Sales, Ltd., of Barnsley—U.K.821145.

A type of back-shunt for foreshortening heapstead buildings for mine car roads, using a pivoted platform for the rails which is hydraulically operated.

LOADER

Marsden Coachbuilders, Ltd., of Warrington—U.K.821156.

A lorry design, etc., with unloader for use with meat carcasses, supported on rails—aimed to avoid sag and misalignment, by having the gantry integral with the roof rail, by making it with a pivot and hydraulic operation.

SWINGING BOOM HANDLER

Embart Manufacturing Co., of Hartford, Conn.—U.K.821170.

Man-cage handling and elevating device, as used in tree surgery, etc., comprising two pivoted booms pivoted together to give a large amplitude of operation. The design is highly stable and uses few parts, uses a balanced cable action.

PALLET LOADING

Matthews Conveyor Co., Ltd., of Ontario—U.K.821189.

An improvement on the machine outlined in patents 811353-4 with compacting and centring of articles being palletized.

HYDRAULIC RESERVOIR

Yale & Towne Manufacturing Co., of New York—U.K.821217.

For use on industrial truck load lifters to avoid turbulence during by-pass by having limited access of pipes to reservoir, via inverted channel-shaped members at the connection.

PALLET LOADING

J. W. Greer Co., of Wilmington—U.K.821259.

Package handling conveyor with stacking on pallets, using minimum power and floor space and a superior form of stripper bar.

MIXER CLUTCH

Jaeger Machine Co., of Ohio—U.K.821300.

A form of clutch and gear shift for concrete mixers, with brake and engine control which prevents gear clashing, and uses no springs.

SEMI-TRAILER

Trailmobile Inc., of Ohio—U.K.821306.

Design with improved upper fifth wheel to allow larger capacity space without increasing length—by means of special floor grid and strengthened flush attachment for wheel.

CONVEYOR

Fisher & Ludlow, Ltd., of Birmingham—U.K.821360.

Improvement on patent 819343 with a retaining member to avoid movement of suspended but stationary articles until positive drive desired—so avoiding collisions, e.g., of car parts.

BELT TRACK

P. J. Packman, of Twyford—U.K.821370.

Way of avoiding belt wander for thin conveyors, using two guides at edges giving temporary corrugations which stiffen the conveyor and prevent buckling or overturn.

BOTTLE STRIPPER

I. D. Glazen, of Dallas—U.K.821381.

For use with carriers holding bottles suspended by necks, using a carrier lift up an incline whilst bottles held from bottom.

POWER TRUCK

Yale & Towne Manufacturing Co., of New York—U.K.821383.

A load lift truck with double pivoted arm lever system whilst using an upright channel system, which can be tilted if desired.

Ref. 821170, man-cage handling and elevating device

